



VALIDATION REPORT

SJSC "UZBEKENERGO"

VALIDATION OF THE

TALIMARJAN CLEAN ENERGY GENERATION PROJECT

REPORT No.BVC/UKRAINE-VD/0408/2012

REVISION No.04

BUREAU VERITAS CERTIFICATION

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VALIDATION REPORT

Date of first issue: 16/01/2013	Organizational unit: Bureau Veritas Certification Holding SAS
Client: SJSC "Uzbekenergo"	Client ref.: Mr. Iskandar Basidov

Summary:

Bureau Veritas Certification has conducted the validation of Talimarjan Clean Energy Generation Project, owned by SJSC "Uzbekenergo", which is located in the Republic of Uzbekistan, on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the project design document and additional background documents; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final validation report and opinion. The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the validation process is a list of Clarification Requests, Corrective Actions Requests, and Forward Actions Requests (CLs, CARs and FARs), presented in Appendix A. Taking into account this output, the project proponent revised its project design document.

In summary, it is Bureau Veritas Certification's opinion that the project correctly applies the baseline and monitoring methodology and meets all relevant UNFCCC requirements for the CDM and the relevant host country criteria. Bureau Veritas Certification thus requests the registration of the project as a CDM project activity.

Report No.: BVC/UKRAINE- VD/0408/2012	Subject Group: CDM
Project title: Talimarjan Clean Energy Generation Project	
Work carried out by: Ms.Kateryna Zinevych – Team Leader Ms.Svitlana Gariyenchyk - Team Member Mr. Sergii Verteletskyi - Team Member Mr. Vyacheslav Yeriomin – Team Member, Technical Specialist Mr. Denis Pishchalov – Team Member, Financial Specialist	
Internal Technical Review carried out by: Mr.Ivan Sokolov – Technical Reviewer Mr. Leonid Yaskin - ITR Specialist	
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Work approved by:  Ms Anna Kalacheva/Sanjay Patankar

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Abbreviations

BVCH	Bureau Veritas Certification Holding SAS
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CL	Clarification Request
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
DOE	Designated Operational Entity
FAR	Forward Action Request
GHG	Green House Gas(es)
MoV	Means of Verification
MP	Monitoring Plan
PDD	Project Design Document
PLF	Plant Load Factor
PP	Project Participant
PPA	Power Purchase Agreement
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard

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1. INTRODUCTION

SJSC "Uzbekenergo" has commissioned Bureau Veritas Certification to validate its CDM project Talimarjan Clean Energy Generation Project (hereafter called "the Project") in the Republic of Uzbekistan.

This report summarizes the findings of the validation of the Project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1. Objective

The objective of a validation is to provide a through and independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan, and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design, as documented, is sound and reasonable, and meets the applicable CDM requirements and the identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

1.2. Scope

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against the requirements of paragraph 37 of the CDM M&Ps, the applicability conditions of the selected methodology and guidance issued by the Board.

The validation is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

1.3. Validation Team

The assessment team and internal technical reviewer team consist of the following personnel:

FUNCTION	NAME	TA 1.1	TA X.X	TASK PERFORMED*
Team Leader	Ms. Kateryna Zinevych	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI <input type="checkbox"/> TR
Team Member	Ms. Svitlana Gariyenchyk	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> DR <input checked="" type="checkbox"/> SV <input checked="" type="checkbox"/> RI <input type="checkbox"/> TR
Team Member	Mr. Sergii Verteletskyi.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> DR <input checked="" type="checkbox"/> SV <input type="checkbox"/> RI <input type="checkbox"/> TR
Technical	Mr. Vyacheslav	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> DR <input checked="" type="checkbox"/> SV <input type="checkbox"/> RI <input type="checkbox"/> TR



Specialist	Yerimin			
Financial Specialist	Mr. Denis Pishchalov	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI <input type="checkbox"/> TR
Internal Technical Reviewer (ITR)	Mr. Ivan Sokolov	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI <input checked="" type="checkbox"/> TR
ITR Specialist	Mr. Leonid Yaskin	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> DR <input type="checkbox"/> SV <input type="checkbox"/> RI <input checked="" type="checkbox"/> TR

*DR = Document Review; SV = Site Visit; RI = Report issuance; TR = Internal Technical Review

2. METHODOLOGY

The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In order to ensure transparency, a validation protocol was customized for the project, according to the version 03.0 of the Clean Development Mechanism Validation and Verification Standard, issued by CDM Executive Board at its 70th meeting on 23/11/2012. The protocol shows, in a transparent manner, criteria (requirements), means of validation and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organizes, details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The completed validation protocol is enclosed in Appendix A to this report.

2.1. Review of Documents

The Project Design Document (PDD) Talimarjan Clean Energy Generation Project Version 3.0 submitted by SJSC "Uzbekenergo" on 16/07/2012 and additional background documents related to the project design and baseline were reviewed.

Furthermore, cross checks were made between information provided in the PDD and information from sources other than those used, such as site visit and interviewing of the project participants. In response to the outstanding issues raised by Bureau Veritas Certification after the site visit, SJSC "Uzbekenergo" revised the PDD and resubmitted it on 07/11/2012 as version 4.0.

To address Bureau Veritas Certification further corrective action and clarification requests, SJSC "Uzbekenergo" revised the PDD and resubmitted it on 20/11/2012 as version 4.1.



To address Bureau Veritas Certification Internal Technical Reviewer requests, SJSC "Uzbekenergo" revised the PDD and resubmitted it on 04/02/2013 as version 4.2. After one of the major financial indicators for conducting financial analysis of the project (equity IRR presented in Table 9 of the PDD) had been revised and adjusted to be applied more appropriately, the PDD was resubmitted to the DOE on 10/04/2013 as version 4.3 and later on as Version 4.5 dated 07/11/2013. Considering the requests made by the CDM team on 17/10/2013, the PDD was resubmitted as version 4.5 dated 07/11/2013. In response to the CDM requests made on 06/02/2014, the PDD was updated to version 4.6. and then to the version 4.7 dated 30/06/2014.

Following a request for review, under review and subsequently to further substantiate the suitability of the input values in line with the VVS version 07.0 paragraph 127(b) and 127(c) additional information was obtained and DOE requested PPs to correct PDD accordingly. Resulting PDD version 4.8 dated 30/03/2015 was presented.

The validation conclusions presented in this report relate to the project as described in the PDD version 4.8 that is deemed to be final.

2.2. Follow-up Interviews

On 10/09/2012 – 11/09/2012, Bureau Veritas Certification performed a site visit and interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of SJSC "Uzbekenergo" and Synecta a.s., as well as the local stakeholders were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
SJSC "Uzbekenergo" (the Project Owner)	<ul style="list-style-type: none"> ➤ Project background information and CDM consideration. ➤ Project technology, operation and maintenance. ➤ Project approval and implementation status. ➤ Project management and monitoring plan. ➤ Stakeholder consultation process. ➤ Common practice in the area. ➤ Government policies related to the project activity ➤ Project background in details ➤ Stakeholder comments ➤ Social and environmental impact of the project
Synecta a.s. (the Consultant)	<ul style="list-style-type: none"> ➤ Applicability of selected methodology. ➤ Baseline determination. ➤ Emission reductions calculation. ➤ Emission reduction monitoring plan.
Local NGO "Ekomaktab"	<ul style="list-style-type: none"> ➤ Local stakeholder assessment and comments on the project



2.3. Resolution of Clarification, Corrective and Forward Action Requests

The objective of this phase of the validation is to resolve issues that require further elaboration, research or expansion prior to Bureau Veritas Certification's positive conclusion on the project design.

A Corrective Action Request (CAR) is raised, if one of the following situations occurs:

- (a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable, verifiable and additional emission reductions;
- (b) The applicable CDM requirements have not been met;
- (c) There is a risk that emission reductions cannot be monitored or calculated.

A Clarification Request (CL) is raised, if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

A Forward Action Request (FAR) may also be raised during validation, to identify issues related to project implementation that require review during the first verification of the project activity.

To guarantee the transparency of the validation process, the issues raised, the responses provided by the project participants, the means of validation of such responses and references to any resulting changes in the PDD or supporting annexes are documented in the Validation Protocol in Appendix A.

2.4. Internal Technical Review

The validation report underwent an Internal Technical Review (ITR) before requesting registration of the project activity.

The ITR is an independent process performed to examine thoroughly that the process of validation has been carried out in conformance with the requirements of the validation scheme as well as internal Bureau Veritas Certification procedures.

The Team Leader provides a copy of the validation report to the reviewer, including any necessary validation documentation. The reviewer reviews the submitted documentation for conformance with the validation scheme. This will be a comprehensive review of all documentation generated during the validation process.

When performing an Internal Technical Review, the reviewer ensures that:

- The validation activity has been performed by the team by exercising utmost diligence and complete adherence to the CDM rules and requirements.
- The review encompasses all aspects related to the project which includes project design, baseline, additionality, monitoring plans and emission reduction



calculations, internal quality assurance systems of the project participant as well as the project activity, review of the stakeholder comments and responses, closure of CARs and CLs during the validation exercise, review of sample documents.

The reviewer may raise Clarification Requests to the validation team and will discuss these matters with the Team Leader.

After the agreement of the responses to the Clarification Requests from the validation team as well as the PP(s), the finalized validation report is accepted for further processing such as uploading via the UNFCCC interface.

3. VALIDATION CONCLUSIONS

In the following sections, the conclusions of the validation are stated.

The findings from the desk review of the original project design documents and the findings from interviews during the follow up site visit are described in the Validation Protocol in Appendix A.

The Clarification, Corrective and Forward Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in Appendix A. The validation of the Project resulted in 32 CARs and 15 CLs.

The CARs and CLs were closed out based on adequate responses from the Project Participant(s) which meet the applicable requirements. They have been reassessed before their formal acceptance and closure.

3.1. Approval (43-44)

The letters of approval have been received and the following support documentation has been verified by Bureau Veritas Certification:

Ministry of Economy of the Republic of Uzbekistan, a DNA of the Republic of Uzbekistan has issued the Letter of Approval No CF-2-1/12-42-1 on 19/11/2012 (listed under No.36 in Category 1 Documents of Section 6 References of the present Validation report) authorizing SJSC "Uzbekenergo" as the Project Participant and confirms that the Project assists the Republic of Uzbekistan in achieving sustainable development.

The Ministry of Environment of the Czech Republic, a DNA of the Czech Republic has issued the Letter of approval No.689/M/13 11640/ENV/13 dated 22/02/2013 (listed under No.39 in Category 1 Documents of Section 6 References of the present Validation report).

Bureau Veritas Certification received the letters of approval from both project participants and does not doubt their authenticity.

The letters of approval do not refer to a specific version of the validation report.



In accordance with para. 39 – 42/VVS, Bureau Veritas Certification considers that:

The letters confirm that the Parties are Parties to the Kyoto Protocol;

The letters confirm the participation is voluntary;

The letters confirm that the proposed project activity contributes to the sustainable development of the country;

The letters refer to the precise proposed project activity title in the PDD being submitted for registration.

The letters of approval are unconditional with respect to the items above.

The letters of approval have been issued by both Parties' DNAs and are valid for the proposed project activity under validation.

3.2. Authorization (49)

The participation for each project participant has been authorized by the Host Party of the Kyoto Protocol.

The validation team concludes this by seeing the authentic Letter of Approval by the Republic of Uzbekistan DNA (LoA No.CF-2-1/12-42-1 dated 19/11/2012) as well as Letter supporting LoA No CF-2-1/12-42 dated 19/11/2012 issued by Ministry of Economy of the Republic of Uzbekistan, DNA of the Republic of Uzbekistan (listed under No. 43 in Reference Category 2 Documents Section of the present Verification Report).

In addition to that the BVC validation team made a telephone call to the Ministry of Economy of the Republic of Uzbekistan. The representatives of the DNA acknowledged that the project had been approved and the LoA had been issued.

The validating team has verified the validity of the LoA issued by the Republic of Uzbekistan by placing a telephone call to its DNA. The validity and authenticity of the LoA issued by the Czech Republic has been checked by requesting and further receiving the relevant letter of confirmation from Mr. Martin Fiala, a representative of the Department of Energy and Climate Protection - Emission trading section of the Czech Republic DNA listed under No.40 in Category 1 Documents of Section 6 References of the present Validation report.

3.3. Sustainable Development (52)

The host Party's DNA has confirmed the contribution of the Project to the sustainable development of the Republic of Uzbekistan. Please refer to section 3.1 of this report.

Summarizing, the project contributes to all three aspects of sustainable development, such as:



1. Economic aspects: a. increasing efficiency of the power generation and reduction of fuel consumption per kWh; b. transferring sustainable technology from the internationally recognized engineering firms; c. preserving a finite resource such as natural gas and as a result more sustainable power supply to the consumers and, thus, positively effecting Kashkadarya region, that is a relatively rural and economically disadvantaged region of the Republic of Uzbekistan
2. Environmental aspects: a. more efficient use of energy resources; b. reduction of GHG emissions and other pollutant emissions (i.e., NOx, SO2, VOCs) associated with electricity generation in the Republic of Uzbekistan; c. reduction of water disposal to Karshinskiy water channel
3. Social aspects: a. local stakeholders contributions; b. increasing of better living condition availability; c. introduction of updated technology and training of local employees to increase intellectual capacity of the Republic of Uzbekistan; d. creating new employment opportunities for local residents.

Thus, it can be concluded that the CDM project contributes to sustainable development in the Republic of Uzbekistan.

3.4. Modalities of Communications (58,61)

The validation team has performed due diligence on the MoC statement and validated the corporate identity of all project participants and focal points included in the Modalities of Communication (MoC) statement, as well as the personal identities, including specimen signatures and employment status, of their authorized signatories.

Bureau Veritas Certification confirms that the MoC statement complies with all relevant forms and requirements. (Refer to Section 6 References Category 2 Documents of this report, doc No.20, 34, 35).

3.5. Project Design Document (63)

Bureau Veritas Certification hereby confirms that the PDD complies with the latest forms of the guidance documents for completion of PDD.

3.6. Changes in the Project Activity (17)

During the site visit, no physical changes pertaining to the project design was observed as compared to details mentioned in the webhosted PDD.

In the process of validation the minor difference between the final version of the PDD and the webhosted PDD occurred due to the change in contact information (the title of the Host party contact person and Synecta a.s. address have been changed). It was verified and is confirmed by the validation team that contact information comprised in the PDD final version completely coincides with the one indicated in MoC statement, as well as in all other documents related to the project.



Upon request for review the project start day was changed (now 07/03/2013).

3.7. Project Description (69)

The Project is the construction of two new Combined Cycle Gas Turbine Power Plants (CCGT) in the boundary of the existing Talimarjan thermal power station (TTPS) which has geographical coordinates of north latitude 38°28'53.37" and east longitude 65°37'48.34".

The process undertaken to validate the accuracy and completeness of the project description included on site checking, (see References for the documents collected and pictures taken in Reference section of the present Verification report) and supporting documentation review.

The Project will result in average annual emission reductions of 836,152 tCO₂e and 8,361,518 tCO₂e during the ten years of its fixed crediting period (01/07/2015 – 30/06/2025).

Upon request SJSC "Uzbekenergo" presented a copy of "EPC Contract Agreement (Contract No. : SJSC/UzbekEnergo/ICB-2010-001)" between Talimarjan TPP Unitary Enterprise of SJSC UZBEKENERGO and Hyundai Engineering & Construction and Daewoo International Consortium concerning Talimarjan Thermal Power Plant Expansion Project – Construction of two Combined Cycle Power Plant (Gross 929 MW). The contract is dated 07.03.2013. The contract scope is to engage the Contractor to design, manufacture, test, deliver, construct, install, complete and commission certain facilities viz. [Gas Turbine and Generator, Steam Turbine and Generator, Auxillary equipment, Civil and Building stated in the contact agreement] and provide training to the Employer's technical personnel. The date this agreement is accepted as a project start date instead of previous date (25/06/2012 when a Framework Agreement" between the SJSC "Uzbekenergo" and the company "Synecta a.s" was signed). Corresponding changes to the PDD and Validation Report were performed regarding the project start day and project timeline.

EPC Contract Agreement is dated 07.03.2013. This is the date when Project Participants committed to expenditure, i.e. the major commitment and funding allocation to the proposed CDM project.

The CDM component was a very important aspect of financing mentioned in the Agreement, where the Parties (the following passage is cited from the Agreement):

- expressing the desire to promote measures to reduce greenhouse gas emissions by implementing energy saving projects;
- based on the goals of the project financing for the development of environmental and social infrastructure through deductions from the sale of certified emission reductions resulting from implementation of the project;
- taking into account the limited duration of the first commitment period under the Kyoto Protocol and the uncertainty of the second commitment period, as well as market mechanism for the implementation of CERs;



- desiring to enhance cooperation between the parties in the development and implementation of projects on climate change

agreed to conclude this Agreement that defines the general conditions which the contracting parties intend to be guided by implementing cooperation in the implementation of the Project on Clean Development Mechanism of the Kyoto Protocol. The Agreement comprises further provisions on development of technical documentation, validation and implementation procedures for the project registration, as well as commitment to funding those procedures.

Thus, the validation team is able to verify that the project activity start date 07.03.2013 determined in the PDD is appropriate. This is in accordance with the latest CDM glossary. 07.03.2013 is taken as the CDM project start date in compliance with EB 41, Paragraph 67, since it is the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity, and the project activity could restart after the firm commitment of the project proponent to seek CDM finance.

In order to validate the above mentioned the validation team checked the following key documents:

1. Initial feasibility study for the investment project on construction of two Combined Cycle Gas Turbine Power plants with the capacity of 450 MW each, 2008
2. Report and Recommendation of the President to the Board of Directors. Project Number: 43151. February 2010. Loan and Administration of Cofinancing. Republic of Uzbekistan: Talimarjan Power Project
3. ADB. 2010. Report and Recommendations of the President to the Board of Directors: Proposed loans and administration of loan Republic of Uzbekistan: Talimarjan Power Project: Sector Analysis
4. Asian Development Bank Report and Recommendation of the President to the Board of Directors Proposed Loans and Administration of Loan Republic of Uzbekistan: Talimarjan Power Project Number: 43151 March 2010
5. Uzbekenergo official web-site
6. Uzbekenergo official web-site: Present situation and perspective development of power system
7. Resolution Cabinet of Ministers of the Republic of Uzbekistan dated 04/06/2002 No. 196 "On Measures to Develop JSC "Ugol" and Program to Develop Coal Industry of the Republic for 2002-2010
8. Environmental Impact Assessment Report. Republic of Uzbekistan: Talimarjan Clean Power Project. December 2009.
9. CER Volume Estimation for 'Talimarjan Clean Energy Project', Version 4.7 dated 30/06/2014
10. Prior consideration of the CDM form (Version 02.0), Talimarjan Clean Energy Project
11. Google map website
12. Letter No.5742 dated 26/11/2012 on technical characteristics of Combined Cycle Gas Turbine from UE "Talimarjon Thermal Power Station" of SJSC "Uzbekenergo"



13. Modalities of Communication Statement, version 02.1
14. Framework Agreement on cooperation between SJSC “Uzbekenergo” and the company “Synecta a.s.” (Czech Republic) to implement the Clean Development Mechanism of the Kyoto Protocol or the project aimed at reducing greenhouse gas emissions dated 25/06/2012

The validation did not reveal any information indicating that the Project can be seen as a diversion of official development assistance (ODA) funding towards the host country. The DOE hereby confirms that the project description in PDD is accurate and complete in all respects and that there are no changes to the project design and boundary as compared to the webhosted PDD.

3.8. Baseline and Monitoring Methodology

3.8.1. Applicability of the selected Methodology (77)

The Project uses the approved consolidated baseline and monitoring methodology AM0029 “Baseline Methodology for Grid Connected Electricity Generation Plants using Natural Gas” version 3.0.

The applicability of the selected methodology is justified and assessed as follows:

Applicability condition 1: The project activity is the construction and operation of a new natural gas fired grid-connected electricity generation plant: The project envisages construction of two new Combined Cycle Gas Turbine Power Plant (CCGT) in the boundary of the existing Talimarjan thermal power station (TTPS) in Kashkadarya region of the Republic of Uzbekistan (new turbines power plant will be constructed close to the existing capacities of the power plant).

Applicability condition 2: The geographical/physical boundaries of the baseline grid can be clearly identified and information pertaining to the grid and estimating baseline emissions is publicly available: The geographical/physical boundaries of the Uzbekistan national grid can be clearly identified and information pertaining to the grid and related emission factor is published officially in the Uzbekistan’s DNA website. Future natural gas based power capacity additions, comparable in size to the project activity, are not constrained by the use of natural gas in the project activity: Natural gas reserve in Uzbekistan is 1.841 trillion cubic meters as of 1 January 2012. Natural gas is supplied from the Shurtan gas field and processing facilities located about 30 km from the project site. Gas reserves and supply capacity of 953 million cubic meters per year is assured for the entire life of the proposed project activity. Hence, future natural gas based power capacity additions, comparable in size to the project activity, will not be constrained by the use of natural gas in the project activity.

Applicability condition 4: Natural gas should be the primary fuel. Small amounts of other startup or auxiliary fuels can be used, but can comprise no more than 1% of total fuel use, on energy basis: It is confirmed through the site visit that no other fuel besides natural gas is used as a feedstock. It is common knowledge that the CCGT technology is hardly, if ever, compatible with the use of fuels other than natural gas.



Applicability condition 5: In some situations, there could be price-inelastic supply constraints (e.g. limited resources without possibility of expansion during the crediting period) that could mean that a project activity displaces natural gas that would otherwise be used elsewhere in an economy, thus leading to possible leakage. Hence, it is important for the project proponent to document that supply limitations will not result in significant leakage as indicated here: Uzbekistan has the proven and potential reserves of 1.841 trillion cubic meters of natural gas, which has been observed for more than past 10 years. In 2009, total consumption of natural gas in Uzbekistan was 50.9 bln t cubic meters. Hence, sufficient gas will continue to be available more than that of consumption from existing capacity of gas based power plants. Therefore, there are no price-inelastic supply constraints as far as natural gas is concerned and no leakage during the crediting period is expected.

In order to validate the compliance of the project with the applicability criteria of the methodology chosen by the PPs, the following key documentation was checked:

1. AM0029: Baseline Methodology for Grid Connected Electricity Generation Plants using Natural Gas Version 3.0, valid from 30 May 2008.
2. Tool for the demonstration and assessment of additionality – Version 07.0.0
3. Tool to calculate the emission factor for an electricity system – Version 03.0.0
4. AM0087. Baseline methodology. Construction of a new natural gas power plant supplying electricity to the grid or a single consumer, Version 2.0, valid from 13 Aug 2010
5. Website of Uzbekistan's DNA www.uzbekenergo.uz
6. CO2 Emission Factor Calculation for the Uzbekistan National Grid (2010), Version 2, dated 07/02/2012
7. Central Intelligence Agency. 2011. "World Factbook: Country Comparison- Natural Gas Proved Reserve." <https://www.cia.gov/library/publications/the-world-factbook/geos/uz.html>
8. US Energy Information Administration. Country Analysis Brief <http://www.eia.gov/countries/country-data.cfm?fips=UZ#ng>
9. Letter of request # IB-01-21/1830 dated 19/09/2013 of the Chairman of the Board of SJSC "Uzbekenergo" Mr. Basidov.
10. Letter #31/7-5306 dated 14/10/2013 of the Chairman of Board of the National Holding Company "UZBEKNEFTEGAZ" Mr. Fajzullayev.

Bureau Veritas Certification hereby confirms that the selected baseline and monitoring methodology AM00029, Version 3.0; "Tool for the demonstration and assessment of additionality" (version 07.0.0), and "Tool to calculate the emission factor of an electricity system" (version 03.0.0) are previously approved by the CDM Executive Board, and is applicable to the Project, which, complies with all the applicability conditions therein.



3.8.2. Project Boundary (86-87)

The validation team has validated the project boundary by:

- (a) Assessing the relevant documents
- (b) Observing the physical site and equipment used in the process.

The spatial extent of the project boundary is clearly defined in line with AM0029, version 3.0 and includes the project site and all power plants connected physically to the baseline grid as defined in "Tool to calculate emission factor for an electricity system".

As per the above guidance, the project boundary for the project activity will include the project site which includes the power plant machinery and all the auxiliary equipment necessary to operate the power plant. All other power plants connected physically to the baseline grid are also included in the project boundary.

In line with the methodology applied, in the calculation of project emissions, only CO₂ emissions from fossil fuel combustion at the project plant are considered.

All the above mentioned was validated on site and with the help of document assessment of the following:

1. AM0029: Baseline Methodology for Grid Connected Electricity Generation Plants using Natural Gas Version 3.0, valid from 30 May 2008.
2. Photo: Talimarjan Thermal Power Plant. Steam Turbine Generator Power House
3. Photo: Talimarjan Thermal Power Plant. Evaporation Pond
4. Photo: Talimarjan Thermal Power Plant. FDN Column at Power House
5. Photo: Talimarjan Thermal Power Plant. Cooling Water Discharge Point
6. Photo: Talimarjan Thermal Power Plant. Cooling Water Intake Pump House
7. Photo: Talimarjan Thermal Power Plant. Karshi Main Canal

Bureau Veritas Certification hereby confirms that the identified boundary and the selected sources and gases are justified for the project activity. The validation team did not identify any emission sources that will be affected by the implementation of the proposed project activity and which are expected to contribute more than 1% of the overall expected average annual emissions reductions, and are not addressed by the selected approved methodology.

3.8.3. Baseline Identification (94-95)

The procedure contained in the methodology to identify the most reasonable baseline scenario has been correctly applied.

The PDD identifies the baseline for the proposed CDM project activity, defined as the scenario that reasonably represents the anthropogenic emissions by sources of GHGs that would occur in the absence of the proposed CDM project activity. Baseline scenario

is construction of natural gas fired open-cycle gas turbine as demonstrated in details in Section B.4 of the PDD version 4.7.

According to the AM0029 version 3.0 the following steps have been followed in order to determine the plausible baseline scenario.

Step 1: Identify plausible baseline scenarios

The methodology stipulates that alternatives to be analyzed should include, *inter alia*:

- The project activity not implemented as a CDM project;
- Power generation using natural gas, but technologies other than the project activity;
- Power generation technologies using energy sources other than natural gas;
- Import of electricity from connected grids, including the possibility of new interconnections.

Among the alternatives analyzed by the project participants there are the following ones:

Scenario A: The project activity not implemented as a CDM project

Scenario B: Construction of an Open Cycle Gas Turbine (OCGT) power plant

Scenario C: Power generation technologies using energy sources other than natural gas. Under this scenario the following options were considered. The project scenario alternatives were re-evaluated by the PPs. As far as the amount of coal needed for alternatives based on the coal-fired power plant is within the range of the coal production in Uzbekistan (please see https://ru.wikipedia.org/wiki/%D0%AD%D0%BA%D0%BE%D0%BD%D0%BE%D0%BC%D0%B8%D0%BA%D0%B0_%D0%A3%D0%B7%D0%B1%D0%B5%D0%BA%D0%B8%D1%81%D1%82%D0%B0%D0%BD%D0%B0#cite_note-autogenerated2-17).

Moreover the government is planning to redirect one of the TPP(Novo-Angren TPP) which uses coal part time to fire coal full time that will require to almost double coal extraction in the country. This was cross checked in the internet <http://sreda.uz/index.php?newsid=537>, <http://www.gazeta.uz/2014/04/16/coal/> and found justified.

Scenario D: Import of electricity from connected grid is not considered a plausible alternative to the project activity. Its exclusion from the PPs consideration is explained by the dramatic import reduction of electricity after the collapse of the Soviet Union, on the one hand and substantial export potential of the country as well as the government policy to increase natural gas exports, and to draw direct foreign investment to the energy sector, on the other hand. According to the government strategy published in 2008, increase of energy exports on a commercial basis is one of the main strategies for Uzbekistan to correspond increasing energy demand at regional level.

The DOE confirms that an appropriate explanation and documentation to support the exclusion of this scenario is provided.

* <http://www.carecinstitute.org/uploads/docs/UZB-Welfare-Improvement-Strategy-ru.pdf>

**Step 2: Identify the economically most attractive baseline scenario alternative**

To identify the economically most attractive alternative to the project scenario in accordance with the methodology AM0029 used, the project participants applied investment analysis and chose the levelized cost of electricity production as financial indicator for all alternatives remaining after Step 1.

The data presented in Table 5 of the PDD on the following techno-economic parameters

- Total rated capacity
- Plant Load Factor Internal electricity consumption
- Efficiency of the plant Investment Cost
- Fuel and water cost
- Maintenance and management costs
- Insurance
- Capital repair

for the LCOE calculation were provided by SJSC “Uzbekenergo”.

Clear comparison of the financial indicator for all scenario alternatives is presented in Table 6 of the PDD. A natural gas-fired Open Cycle Gas Turbine (OCGT) power plant is the lowest among plausible baseline alternatives and is pre-selected as the most plausible baseline scenario.

A sensitivity analysis has been performed for both alternatives to confirm that the above financial analysis is robust to reasonable variation in the critical assumptions. According to the calculation formula of LCOE, the parameters used for calculating LCOE are I_t , M_t , F_t , E_t and r , and the corresponding critical assumptions are the total investment capital, plant load factor, and the fuel price.

The sensitivity analysis is fully conclusive and in all cases demonstrates that the pre-selected alternative remains the most economically attractive and therefore the most plausible scenario.

As a result of the approach applied, construction of the natural gas-fired OCGT power plant was identified by the project participants as the most economically attractive option, i.e. the baseline scenario.

In order to validate the adequate identification of the baseline scenario the following key documentation was checked:

1. AM0029: Baseline Methodology for Grid Connected Electricity Generation Plants using Natural Gas Version 3.0, valid from 30 May 2008.
2. Letter No.5741 dated 16/11/2012 on data for calculation of financial model from UE “Talimarjon Thermal Power Station” of SJSC “Uzbekenergo”
3. Letter No.5742 dated 16/11/2012 on technical characteristics of Combined Cycle Gas Turbine from UE “Talimarjon Thermal Power Station” of SJSC “Uzbekenergo”
4. Financial Analysis Review of Talimarjan Power Project based on the Financial Management and Analysis of Projects of the Asian Development Bank



5. Levelized tariff estimates prepared by the Asian Development Bank
6. Currency exchange rates established by Central Bank of the Republic of Uzbekistan from 20/03/2012
7. Pipeline rates for bulk consumers established by Ministry of Finance of the Republic of Uzbekistan
8. ADB. 2010. Report and Recommendations of the President to the Board of Directors: Proposed loans and administration of loan Republic of Uzbekistan: Talimarjan Power Project: Sector Analysis.
9. UNDP. 2007. Chapter 1. Uzbekistan's energy sector
10. IEA. 2009. Energy Technology System Analysis Program: Technology Brief E02; Gas-Fired Power
11. Uzbekenergo official web-site: Present situation and perspective development of power system
15. Projected costs of Generation Electricity, International Energy Agency, 2010 Edition
16. Republic of Uzbekistan: Strategy of Raising Well-being of Population of Republic of Uzbekistan
17. Financial analysis for "Talarjan Clean Energy Project", Version 4.5 dated 07/11/2013

Bureau Veritas Certification hereby confirms that:

- (a) All the assumptions and data used by the project participants are listed in the PDD, including their references and sources;
- (b) All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD;
- (c) Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable;
- (d) Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD;
- (e) The approved baseline methodology has been correctly applied to identify the most plausible baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed project activity.

3.8.4. Algorithms and/or Formulae used to determine Emission Reductions (99-100)

The steps taken and the equations and parameters applied in the PDD to calculate project emissions, baseline emissions, leakage and emission reductions totally comply with the requirements of the selected methodology including applicable tools.



Calculation of CO₂ Emission Factor for the Uzbekistan National Grid was performed by the DNA of the Republic of Uzbekistan according to the “Tool to calculate the emission factor of an electricity system” version 03.0.0. Algorithm of calculation is properly described in Annex 4 of the PDD Version 4.7 dated 30/06/2014.

In order to validate the values used in the project emissions and baseline emissions the following documentation was checked:

1. AM0029: Baseline Methodology for Grid Connected Electricity Generation Plants using Natural Gas Version 3.0, valid from 30 May 2008
2. Tool to calculate the emission factor for an electricity system – Version 03.0.0
3. CO₂ Emission Factor Calculation for the Uzbekistan National Grid, Version 2, dated 07/02/2012
4. 1996 Revised IPCC Guidelines, Volume 3
5. Climate Change 2007: Working Group I: The Physical Science Basis. 2.10.2 Direct Global Warming Potentials
http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html
6. Standard SI values, conversion factor from MWh to GJ
http://en.wikipedia.org/wiki/Conversion_of_units
7. CER Volume Estimation for ‘Talimarjan Clean Energy Project’, Version 4.7 dated 30/06/2014

CO₂ emissions from fuel combustion/electricity consumption associated with the liquefaction, transportation, re-gasification and compression of LNG into a natural gas transmission or distribution system (LE_{LNG,CO₂,y}) are not applicable since LNG is not used in the proposed project activity. It has been evidenced through the document review provided to the validation team in the office of SJSC “Uzbekenergo”, as well as through oral communication and interviewing the officials of SJSC “Uzbekenergo” and manager staff of Talimarjan TPP during the site visit. Thus, project participants should assume LE_y = 0.

Bureau Veritas Certification hereby confirms that:

- (a) All assumptions and data used by the project participants are listed in the PDD, including their references and sources;
- (b) All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PDD;
- (c) All values used in the PDD are considered reasonable in the context of the proposed project activity;
- (d) The baseline methodology and corresponding tool(s) have been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;
- (e) All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.

3.9. Additionality (104)

As required by the selected methodology, the additionality of the Project has been demonstrated by applying the guidance given in the methodology AM0029 version 3.0 using the following steps:

Step 1: Benchmark investment analysis

According to AM0029 (Version 3.0), this step will demonstrate that the proposed CDM project activity is unlikely to be financially attractive by applying sub-step 2b (Option III: Apply Benchmark Analysis), sub-step 2c (Calculation and Comparison of Financial Indicators), and sub-step 2d (Sensitivity Analysis) of the "Tool for the Demonstration and Assessment of Additionality (Version 7.0.0).

Step 2: Common practice analysis

According to AM0029 (Version 3.0), the step will demonstrate that the proposed CDM project activity is not a common practice in the relevant country and sector by applying Step 4 (common practice analysis) of the Tool for the Demonstration and Assessment of Additionality (Version 7.0.0).

Step 3: Impact of CDM registration

In order to validate whether the project is additional or not the following documentation was checked:

1. Initial feasibility study for the investment project on construction of two Combined Cycle Gas Turbine Power plants with the capacity of 450 MW each, 2008
2. Financial analysis for 'Talimarjan Clean Energy Project', Version 02, March 2012
3. Framework Agreement on cooperation between SJSC "Uzbekenergo" and the company "Synecta a.s." (Czech Republic) to implement the Clean Development Mechanism of the Kyoto Protocol or the project aimed at reducing greenhouse gas emissions dated 25/06/2012
4. Prior consideration of the CDM form (Version 02.0), Talimarjan Clean Energy Project.
5. 'Guidelines on the assessment of investment analysis'
6. Letter No.5742 dated 16/11/2012 on technical characteristics of Combined Cycle Gas Turbine from UE "Talimarjon Thermal Power Station" of SJSC "Uzbekenergo"
7. Guidelines on common practice
8. CO2 Emission Factor Calculation for the Uzbekistan National Grid (2010), Version 2, dated 07/02/2012
9. Financial analysis for 'Talimarjan Clean Energy Project', Version 4.5 dated 07/11/2013

3.9.1. Prior consideration of the Clean Development Mechanism (112)

According to the "Guidelines on the Demonstration and Assessment of Prior Consideration of the CDM" (Version 3) project activities with a starting date on or after 02 August 2008, the project participant must inform a Host Party DNA and the UNFCCC

secretariat in writing of the commencement of the project activity and of their intention to seek CDM status.

CDM prior consideration form for the project was sent to the Host Party DNA and received by the UNFCCC secretariat on 14th of December 2012.

The timeline of the project has been validated as in the table below:

Date	Activity	Documentary evidence
March 2010 – Nov 2011	Preliminary project consideration with Asian Development Bank (ADB)	Doc No.1 listed in Reference Category 2 Documents Section of the present VR
August 2010	Development of preliminary FSR for the project	Doc No.1, No.40 listed in Reference Category 2 Documents Section of the present VR
December 2011	Receiving documents from Uzbekenergo to perform CER and financial calculations for the project	—
March 2012	Completion of feasibility calculations showing that financial IRR is much lower than benchmark of power industry in Uzbekistan	Doc No. 2 listed in Reference Category 2 Documents Section of the present VR
June 2012	Signing Framework Agreement between Uzbekenergo and Synecta a.s.	Doc No. 14 listed in Reference Category 2 Documents Section of the present VR
December 2012	CDM prior consideration form was sent to the Host Party DNA and the UNFCCC secretariat	Doc No. 32 listed in Reference Category 1 Documents Section of the present VR Doc No. 44 listed in Reference Category 2 Documents Section of the present VR
March 2013	EPC Contract Agreement – Starting date of the Project	Doc No. 69 listed in Reference Category 2 Documents Section of the present VR
Nov 2013	Approval of final Feasibility study report	Doc No. 68 listed in Reference Category 2 Documents Section of the present VR
Jan 2014	Obtaining permission for construction works	Doc No. 68 listed in Reference Category 2 Documents Section of the present VR
Sept 2016	Expected date of the 1st turbine commissioning	Doc No. 68 listed in Reference Category 2 Documents Section of the present VR



Jan 2017	Expected date of the 2nd turbine commissioning	Doc No. 68 listed in Reference Category 2 Documents Section of the present VR
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From the table above, the validation team is able to verify that the project activity start date determined as 07/03/2013 in the PDD is appropriate and is the earliest of the dates at which either the implementation or construction or real action of the Project began. This is in accordance with the latest CDM glossary.

It is a project activity with a start date after 2 August 2008, for which a PDD had not been published for global stakeholder consultation before the project activity start date. By referring to the list of prior consideration notifications from the UNFCCC website and communication between the project proponent and the secretariat (on 14/12/2012) regarding the commencement of a new project activity, the validation team confirms that the notifications have been provided by the project participants within 180 days of the project activity start date.

Bureau Veritas Certification hereby confirms that the proposed project activity complies with the requirements related to the prior consideration of the CDM.

3.9.2. Identification of Alternatives (116)

The plausible and credible alternatives to the Project were identified as per Methodology AM0029, version 3.0.

The list of alternatives and their assessment is provided in Section 3.8.3. of the present Validation report.

Bureau Veritas Certification considers the listed alternatives to be credible and complete.

3.9.3. Investment Analysis (123)

Analysis method

As it has been mentioned in Section 3.9 of the present Verification report, the additionality of the project has been demonstrated by applying the guidance given in the methodology AM0029 version 3.0 using the following steps:

Step 1: Benchmark investment analysis

Step 2: Common practice analysis

Step 3: Impact of CDM registration

The developer chooses benchmark analysis as required by the selected methodology and which is the valid methodology of the financial analysis for the present project.

**Benchmark**

The project participants use equity IRR for the benchmark analysis and apply “Guidelines on the assessment of investment analysis”, Version 05. where the default value of expected return on equity %- 13.25 was used for benchmark investment analysis of Uzbekistan energy industry project.

The validation team considers that the type of benchmark applied is suitable for the type of financial indicator presented; the risk premiums applied in determining the benchmark reflect the risks associated with the project activity; it is reasonable to assume that no investment would be made at a rate of return lower than the benchmark.

Data source

The following documents that justify values in the investment calculation were provided by the PPs and reviewed by the validation team:

1. Feasibility Study Report
2. ADB estimation on the own consumption, technical losses and commercial losses
3. ADB projection on the electricity tariffs
4. Loan rates and expected loan term for the project financing
5. USD exchange rate
6. Natural gas tariffs (source – Uztransgas website)
7. Presidential Degree # PP-1024 from 29.12.2008
8. Tax code of the Republic of Uzbekistan
9. Water costs were taken from the reference information provided by Uzbekenergo which is an estimation but the most accurate up to the date
10. Letter from Uzbekenergo with initial data which were used for Investment analysis calculation
11. Initial feasibility study for the investment project on construction of two Combined Cycle Gas Turbine Power plants with the capacity of 450 MW each, 2008
12. Financial Analysis Review of Talimarjan Power Project based on the Financial Management and Analysis of Projects of the Asian Development Bank
13. Asian Development Bank Report and Recommendation of the President to the Board of Directors Proposed Loans and Administration of Loan Republic of Uzbekistan: Talimarjan Power Project Project Number: 43151 March 2010

The input values are taken from the letters of Uzbekenergo #5144 and #5145 and were crosschecked from FSR, which was presented in March 2012. Based on the conclusion of the FSR, the PP decided to proceed with the Project. The “EPC Contract Agreement (Contract No.: SJSC/UzbekEnergo/ICB-2010-001)” between Talimarjan TPP Unitary Enterprise of SJSC UzbekEnergo and Hyundai Engineering & Construction and Daewoo International Consortium concerning Talimarjan Thermal Power Plant Expansion Project – Construction of two Combined Cycle Power Plant (Gross 929 MW) of was signed 07/03/2013 (Refer to doc No.69 in the list of Category 2 Documents of



the Validation protocol). Given this relative short period of time between the finalization of the FSR and the investment decision, it is unlikely in the context of the underlying project activity that the input values would have materially changed.

Input value

The validation team has reviewed the IRR calculation sheet and cross-checked the major input values using local knowledge as well as sectoral and financial expertise.

Following a request for review, under review and subsequently to further substantiate the suitability of the input values in line with the VVS version 07.0 paragraph 127(b) and 127(c) additional information was searched in the internet and requested from the PPs. PPs presented new evidencing documents that were not available at the moment of decision taking but related to the time after the project start date. These are “EPC Contract Agreement (Contract No.: SJSC/UzbekEnergo/ICB-2010-001)” between Talimarjan TPP Unitary Enterprise of SJSC UzbekEnergo and Hyundai Engineering & Construction and Daewoo International Consortium concerning Talimarjan Thermal Power Plant Expansion Project – Construction of two Combined Cycle Power Plant (Gross 929 MW) of 07.03.2013, and updated FSR developed by Teploelectroproject approved at November 07, 2013. (Feasibility study on “Talimarjan PP enhancement by construction of two combined power plants, 450MW each” volume 1, approved by Uzbekenergo Board Chairman and Uzneftegaschimproect 04.10.2013 and by the President of Uzbekistan Republic 07.11.2013.)

The revised PDD has been submitted by the PP and correspondingly the validation report has been updated to incorporate the information submitted in response to the request for review and under review, regarding the suitability of the input values of the baseline alternatives.

Further information towards the validation of suitability of input values to the alternatives taking into account the VVS version 07.0 paragraph 127(b) and 127(c) is included, as follows:

The project scenario alternatives were re-evaluated by the PPs. As far as the amount of coal needed for alternatives based on the coal-fired power plant is within the range of the coal production in Uzbekistan (please see https://ru.wikipedia.org/wiki/%D0%AD%D0%BA%D0%BE%D0%BD%D0%BE%D0%BC%D0%B8%D0%BA%D0%B0_%D0%A3%D0%B7%D0%B1%D0%B5%D0%BA%D0%B8%D1%81%D1%82%D0%B0%D0%BD%D0%B0#cite_note-autogenerated2-17).

Moreover the government is planning to redirect one of the TPP(Novo-Angren TPP) which uses coal part time to fire coal full time that will require to almost double coal extraction in the country. This was cross checked in the internet <http://sreda.uz/index.php?newsid=537>, <http://www.gazeta.uz/2014/04/16/coal/> and found justified.



The input values of the baseline alternatives are indicated in the letters from Uzbekenergo #5144 and #5145 (Category 2 documents #65-66) were checked from other sources as follows.

Total rated capacity has been checked from feasibility study report and the EPC contract. EPC Contract gives 929 MW (in the PDD figure 820 MW is more conservative).

Plant Load Factor was checked from ADB financial analysis where it was taken as 85% (Category 2 documents #40, also at <http://www.adb.org/Documents/RRPs/?id=43151-02-3>)

Following a request for review, under review and subsequently the guidance provided in EB-48 meeting report, Annex 11, the ex-ante definition of the plant load factors validation was checked.

The Teploelectroproject is a third party contracted by the project participants, contract agreement was presented by PPs, see Category 2 documents #70.. This is in accordance with option (b) of the ex-ante definition of the plant load factors. A plant load factor that derives from the FSR performed by the engineering company Teploelectroproject (Category 2 documents #68) makes 8000 hours/8760 hours = 91.3% (85% taken in the PDD is more conservative)

Internal electricity consumption was checked from Teploelectroproject calculation FSR (Category 2 documents #68) and also from ADB financial analysis where it was taken as 85% (Category 2 documents #40, also at <http://www.adb.org/Documents/RRPs/?id=43151-02-3>), same value is indicated 3.45%.

Efficiency of the two CCGT units for the project is 57.4%. This was checked from the FSR for Talimarjan project makes 57,4% (Siemens option). Same is indicated in the pg. 9 of ADB financial analysis, at <http://www.adb.org/Documents/RRPs/?id=43151-02-3>. Efficiency of for steam-cycle unit is estimated as 34% at the FSR by Teploelectroproject (Category 2 documents #68) and this is confirmed in the ADB financial analysis.

Investment Cost was checked from the EPC contract investment costs per MW are 861,8/929 =0,928 mln.\$/MW. In the PDD for calculations 0.995 mln. \$/MW were applied which is more conservative. (Category 2 documents #69). For OCGT plant the investment was estimated as 0,62 mln.\$/MW. The following documents were reviewed by DOE for cross-checking this value:

1. Projected costs of Generation Electricity, International Energy Agency, 2010 Edition, page 61 Gas Turbine (Germany) – \$ 0.52 mln./MW
<https://mail.google.com/mail/u/1/?pli=1#inbox/14c69ba881ea9c98?projector=1>
2. PDD for “Samra 300 MW combined cycle project” (registration date - 20 Sep 11)
Gas turbine (Jordan) – \$ 0.479 mln./MW
<http://cdm.unfccc.int/Projects/DB/DNV-CUK1309497987.25/view>
3. PDD for “Afam Combined Cycle Gas Turbine Power Project” (registration date - 29 Oct 12) OCGT power plant (Nigeria) -\$ 0.456 mln./MW



<http://cdm.unfccc.int/Projects/DB/DNV-CUK1325573884.39/view>

In the calculation value of \$ 0.62 mln./MW was applied which is higher cost and therefore conservative.

Maintenance and management costs for each alternative, was checked from final FSR where they are estimated as \$ 0,95 mln. (taken the exchange rate 2178.56 valid at 07 November 2013). Assuming the higher capacity of the final project data can be considered as consistent Maintenance and management costs for Open Cycle gas turbine: $(1518780+424247+13620)/2178.56=0.898\text{mln.}\$$, taken in the PDD \$ 0,95 mln is conservative (Category 2 documents #68)

Natural gas cost is available from the Internet data, Uzbekneftegas site <http://ns.uzneftegaz.uz/ru/business/tarifs/> (for wholesale consumers). It also was checked from the Uzbekistan Ministry Finance decree №19-03-22-05-PY3-9-2012 of 15 March 2012, 0.053 US\$/ m3

Water costs - In Teploelectroproject calculation water costs are assumed as 0,0153 \$ per m3. Which are equivalent to \$ 6.5 mln. \$ assuming 57 600 m3/hour water consumption (6.9 was applied in the PDD for calculation). For OCGT plant the estimation of these costs in absolute numbers was 1.05 mln. \$ which were conservatively applied to the calculations.

Capital repair for CCGT alternative was checked from the final FSR, capital repairs are estimated as \$ 34.3 mln. This is bigger figure comparatively to the initial FSR where it was indicated

Technical losses were checked from the ADB financial analysis where it was taken as 85% (Category 2 documents #40, also at <http://www.adb.org/Documents/RRPs/?id=43151-02-3>)

Commercial losses were checked from the ADB financial analysis where it was taken as 85% (Category 2 documents #40, also at <http://www.adb.org/Documents/RRPs/?id=43151-02-3>)

Also the following sources to check the considered project were used by the DOE:

1. Taxes rates were cross-checked against Presidential Degree - Republic Uzbekistan # PP-1024 from 29/12/2008;
2. Projection of the Electricity tariff were cross-checked with Financial analysis report of Asian Development Bank;
3. Gas tariffs were cross-checked against official Uztransgas site;



4. Exchange rates were cross-checked against information provided by National bank of Uzbekistan; and crosschecked at <http://www.freecurrencyrates.com/exchange-rate-history/USD-UZS/2013> currency converter, <http://www.oanda.com/currency/historical-rates/>
5. Technical data for the power plants (alternative scenarios) were cross-checked against Technical feasibility study developed by Teploelectroproject;
6. Letter No.5741 dated 16/11/2012, Letter #5145 dated 15/12/2011, Letter #5144 dated 15/12/2011 on data for calculation of financial model from UE "Talimarjon Thermal Power Station" of SJSC "Uzbekenergo"
7. Tax code of the Republic of Uzbekistan
8. Asian Development Bank estimation on the own consumption, technical losses and commercial losses

Indicator Calculation

The most appropriate financial indicator chosen for the project activity is project IRR.

According to "Guidance on the assessment of investment analysis", the default value of expected return on equity - 13.25% was used for benchmark investment analysis of Uzbekistan energy industry project.

The calculation results indicate that the proposed project without CDM revenue is considered as financially unattractive due to its IRR is **8.83%** which is lower than the benchmark, and it with CDM revenue as financially attractive due to its IRR is **13.76%** which is higher than the benchmark. It is assumed reasonable that no investment would be made at a rate of return lower than the benchmark because there are no any other incentives for the project participants to finance the project rather than potential income from the project implementation.

In summary, based on the input values from the FSR that are valid and applicable at the time of investment decision, the project IRR of the Project without CDM revenues is lower than the benchmark, which shows that the Project is not financially attractive in the absence of CDM benefits.

The validation team has reviewed the IRR calculation spreadsheet (Document No. 11 in the list of Category 1 Documents in Section References of the present VR) and confirms that the calculation and presentation are consistent with the "Guidelines on the assessment of investment analysis" version 05. The data sources as well as the analysis approach is reliable and in accordance with local accounting regulations or international best practice.

Sensitivity Analysis

The DOE performed an assessment of a sensitivity analysis to the CDM project.



A sensitivity analysis was performed by altering the following parameters:

- project costs
- load factor
- fuel costs

Deviations of +10% have been taken into account in the above decisive assumptions. Summary results of the sensitivity analysis are provided in Table 10 of the PDD Section B.5. The results correlate with investment and sensitivity analysis calculation spreadsheet which was assessed by financial specialist of the DOE. All input values related to the sensitivity analysis were validated by revision of the documented evidences.

Thus, considering the probability of the occurrence of the scenarios in the sensitivity analysis, the benchmark will not be crossed and the proposed CDM project is financially not attractive.

The validation team considers that the range of variations is reasonable in the project context. The analysis provided a cross-check on the suitability of the assumptions used in the development of the investment analysis. The conclusion that the project activity is unlikely to be financially/economically attractive is robust to reasonable variations in the critical assumptions.

Bureau Veritas Certification hereby confirms that the underlying assumptions regarding investment analysis are appropriate and the financial calculations are correct.

3.9.4.Barrier Analysis (127)

According to the applied methodology AM0029 the barrier analysis is not required to demonstrate the additionality of the Project.

3.9.5. Common Practice Analysis (130)

According to AM0029, Version 3.0 the step will demonstrate that the proposed CDM project activity is not a common practice in the relevant country and sector by applying Step 4 (common practice analysis) of the Tool for the Demonstration and Assessment of Additionality Version 07.0.0 which in its turn refers to “Guidelines on common practice”; its latest version 02.0 was used by the project participants.

It should be noted from the outset that at the moment there are 2 other CDM projects related to construction of CCGT power plants are being implemented in Uzbekistan:

- CCGT in Navoi TPP, Karmana district, Navoi;
- CCGT in Tashkent TPP, Tashkent city.

But at the moment of project activity start they did not start commercial operation and therefore were not considered. This is confirmed in document “CO2 Emission Factor Calculation for the Uzbekistan National Grid (2010)” Version 2 February 7, 2012

developed by Uzbekistan DNA where all power plants which are currently operated are listed.

There are also other CDM projects which are currently implemented by Uzbekenergo, but they are not related to construction of CCG turbines.

The following step-wise analysis was applied to demonstrate that the project under consideration is not a common practice:

<p><u>Step 1:</u> Calculate applicable capacity or output range as +/-50% of the total design capacity or output of the project activity</p>	<p>The capacity of the proposed project is 900 MW, therefore similar projects identified for common practice analysis are within the range of 450 MW to 1350 MW installed capacity which is equivalent to the range of 3,350 mln. kWh to 10,052 mln. kWh assuming 85% load factor.</p>
<p><u>Step 2:</u> identify similar project (both CDM and non-CDM) which fulfill all of the following conditions:</p> <ul style="list-style-type: none"> (a) The projects are located in the applicable geographical area (b) The projects apply the same measures as the proposed project activity (c) The projects use the same energy source/fuel and feedstock as the proposed project activity. (d) The plant produce the services with comparable quality (e) The capacity or output of the project is within the applicable capacity or output range calculated in Step 1 (f) The projects started commercial operation before the project design 	<ul style="list-style-type: none"> (a) Uzbekistan as established by Tool for the Demonstration and Assessment of Additionality, Version 06.1.0 (b) all projects related to installation of new energy generation are considered. (c) natural gas (d) only natural gas thermal power stations are considered (e) the range of capacity of 450 MW to 1350 MW or the range of the output of 3,350 mln kWh to 10,052 mln kWh is to be considered (f) the earliest date is 08/08/2012 when project was published for global stakeholder consultation.

document (CDM-PDD) is published for global stakeholder consultation or before the start date of the proposed project activity, whichever is earlier for the proposed project activity.	
<u>Step 3.</u> Identify the projects that are neither registered CDM project activities, project activities submitted for registration nor project activities undergoing validation.	None of the reviewed projects are CDM projects, therefore N_{all} is equal to 4.
<u>Step 4.</u> Identify the projects that apply technologies that are different to the technology applies in the proposed project activity.	None of the considered projects are related to implementation of CCGT technology. All the projects listed above are power generation with rankine-cycle technology. See Annex 4 for more details. Therefore N_{diff} is equal to 4.
<u>Step 5.</u> Calculate factor $F = 1 - N_{diff} / N_{all}$ representing the share of similar projects (penetration rate of the measure/technology) using a measure/technology similar to the measure/technology used for the project activity that deliver the same output or capacity as the project activity.	$F = 1 - 4/4 = 0$ $N_{all} - N_{diff} = 4 - 4 = 0$

F is greater than 0.2 and $N_{all} - N_{diff}$ is greater than 3 that in accordance with “Guidelines on common practice”, Version 02.0 proves the proposed project activity is not the common practice.

The following sources of data were checked by the DOE to validate the input data and values used for the common practice analysis:

1. “CO2 Emission Factor Calculation for the Uzbekistan National Grid (2010)” developed by Uzbekistan DNA, Version 2 dated 07/02/2012
2. Prior consideration details at UNFCCC website http://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html
3. Project name ‘Construction of Combined Cycle Gas Turbine unit at Navoi TPP 2



4. Prior consideration details at UNFCCC website
http://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html
5. Project name 'Construction of combined cycled power plant 370 MW
6. PDD published for the GSP
<http://cdm.unfccc.int/Projects/Validation/DB/D67FZW8U0CX0S5575JWDUKYM5CMD3G/view.html>
7. CDM projects in Uzbekistan published for the GSP at UNFCCC site
<http://cdm.unfccc.int/Projects/Validation/index.html>

Bureau Veritas Certification hereby confirms that the proposed CDM project activity is not common practice.

As it has been mentioned in Section 3.9 of the present Verification report, the additionality of the project has been demonstrated by applying the guidance given in the methodology AM0029 version 3.0 using the following steps:

Step 1: Benchmark investment analysis

Step 2: Common practice analysis

Step 3: Impact of CDM registration

As for the Step 3, by conducting the benchmark analysis, the PPs demonstrated that without CDM component the project equity IRR would be lower than established benchmark and thus it wouldn't be considered as financially unattractive; the financial deficit will impact the normal construction or operation of the project will be impacted, which in its turn will further impact the projected GHG emission reductions from the proposed project. With the CERs revenue, the Project will not only have a much improved IRR of total investment of 13,76% as presented in Financial Analysis excel file, but also be able to battle against financial risks coming from increasing project cost, changing of plant load factor, and fuel cost fluctuations .

In conclusion, as demonstrated in accordance with AM0029 Version 3.0; "Tool for the Demonstration and Assessment of Additionality" Version 07.0.0; "Guidelines on common practice", Version 02.0, the proposed CDM project activity is additional.

3.10. Monitoring Plan (133)

The Project uses the approved consolidated monitoring methodology AM0029 Version 3.0, as well as guidelines provided in the Validation and Verification Standard.

Referring to the discussions on the applicability of the methodology in section 3.8.1 above, the validation team considers that the selected monitoring methodology is applicable to the Project.

Data and Parameters Monitored

The monitoring plan for current CDM project is developed based on the approved monitoring methodology AM0029 "Grid connected Electricity Plants using Non-Renewable and Less GHG Intensive Fuel". The methodology is applicable under the same conditions as the associated baseline methodology. The data and parameters



used by the project participants for monitoring are fully consistent with the requirements of the methodology and include the following parameters:

- Annual quantity of natural gas consumed in project activity
- Net calorific value of the fuel
- Oxidation factor of natural gas
- Emission factor of natural gas
- CO₂ emission coefficient
- CO₂ emissions due to natural gas combustion under the project activity

As determined by the project participants, all parameters required are subject to monthly monitoring. The data will be stored in electronic format and kept for the entire crediting period and at least 2 years after the end of the crediting period. All relevant paper-based information will be stored and kept, at least with one hard copy.

As required by the methodology used:

- Total fuel consumption will be monitored both at supplier and project end for cross-verification
- Calorific value of the gas will be provided by the supplier and recorded and verified by the project proponent through lab test. Local or country specific data or IPCC default value (in order of preference) will be used in case data from natural gas supplier is not accessible.
- Oxidation factor of natural gas the local or country specific data will be used. In case they are absent, IPCC default value will be used as recommended in methodology.
- CO₂ emission coefficient will be calculated applying the formula (2) provided in Section B.6.1. of the PDD
- CO₂ emissions due to natural gas combustion will be calculated under the project activity applying the formula (1) provided in Section B.6.1. of the PDD

All the above mentioned was validated on site and with the help of document assessment of the following:

1. AM0029: Baseline Methodology for Grid Connected Electricity Generation Plants using Natural Gas Version 3.0
2. Approved monitoring methodology AM0029 "Grid connected Electricity Plants using Non-Renewable and Less GHG Intensive Fuel"
3. Initial feasibility study for the investment project on construction of two Combined Cycle Gas Turbine Power plants with the capacity of 450 MW each, 2008
4. IPCC 2006 Guidelines for National Greenhouse Gas Inventories, Volume 2 "Energy", Chapter 2 Stationary combustion
5. Law of the Republic of Uzbekistan "On Metrology"
6. Resolution by the President of the Republic of Uzbekistan dated 06/12/2006 No.PP-525 "On Measures on Realization of Investment Projects in the Frameworks of Clean Development Mechanism of Kyoto Protocol"



7. CER Volume Estimation for 'Talimarjan Clean Energy Project', Version 4.7 dated 30/06/2014

The validation team considers that the description of the monitoring plan contains all necessary parameters, that they are described and that the means of monitoring described in the plan complies with the requirements of the methodology including applicable tools.

Implementation of the Monitoring Plan

The monitoring plan for project activity describes management systems and procedures to be implemented by the Project Participant upon project implementation in order to ensure consistent project operation as well as monitoring, processing and reporting of data required for the calculation of emission reductions (ERs) taking into account the guidance in AM0029, Version 3.0 and the guidance presented in the Validation and Verification Standard.

SJSC Uzbekenergo established a dedicated full-time Project Management Unit (PMU) responsible for management of the proposed activity including monitoring plan. The PMU will be responsible to collect record and document all the related monitoring records.

Within the frameworks of the meeting held in the SJSC "Uzbekenergo" office on 10/09/2012, the members of the validation team interviewed Yuriy Chaban, Head of Monitoring Equipment Unit of "Uzenergonaladka" who introduced the validation team to metrological requirements set by the local laws and regulations, such as Law on metrology, Rules on electricity energy facilities issued by Uzbek State Energy Inspection; touched upon the issue of modernization of resource accounting system in the Republic of Uzbekistan including implementation of automatic accounting equipment at all Uzbekenergo power stations; the procedure of equipment maintenance and replacement, as well as documentation procedure.

During the site visit the DOE's validation team has also interviewed the members of the Project Management Unit (PMU). Their names are provided in the list of person interviewed during the validation (Refer to Section References of the present VR).

All meters and instruments will be installed, maintained and calibrated regularly as per industry practices and in accordance with the maintenance schedule programmed at the start of the operation and recalibrated according to the plants performance requirement.

The monthly measured quantity of the consumed natural gas and the electricity to the grid will be cross-checked by the monthly issued invoices.

All documentation required for drafting monitoring reports will be collected and provided by PMU established at Uzbekenergo.

Monitoring reports will include all information used to calculate the emission reductions of the project activity, which reflect the real, measurable and long-term GHG reductions achieved by the project activity.

The validation team considers that the means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures,



are sufficient to ensure that the emission reductions achieved from the proposed project activity can be reported ex post and verified.

Bureau Veritas Certification hereby confirms that the monitoring plan complies with the requirements of the methodology including applicable tools, the monitoring arrangements described in the monitoring plan are feasible within the project design and the project participants are able to implement the described monitoring plan.

3.11. Environmental Impacts (137)

The project participants conducted an environmental impact assessment of the proposed project activity. In accordance with the Resolution of Cabinet of Ministers of the Republic of Uzbekistan dated 31/12/1991 No. 491 "On Approval of Regulation on State Ecological Expertise in the Republic of Uzbekistan" SJSC "Uzbekenergo" prepared an EIA that was reviewed and approved by the State Ecological Expertise, department under State Committee for Nature Protection of the Republic of Uzbekistan, in its Conclusion No.18/526z issued on 05/10/2009.

All the above mentioned was validated on site and with the help of document assessment of the following:

1. Environmental Assessment Report. Republic of Uzbekistan: Talimarjan Clean Power Project
2. Resolution Cabinet of Ministers of the Republic of Uzbekistan dated 31/12/1991 No. 491 "On Approval of Regulation on State Ecological Expertise in the Republic of Uzbekistan"
3. Annex 2 to Resolution Cabinet of Ministers of the Republic of Uzbekistan dated 31/12/1991 No. 491 "List of Activities Subject to State Ecological Expertise"
4. ADB. 2010. Report and Recommendations of the President to the Board of Directors: Proposed loans and administration of loan Republic of Uzbekistan: Talimarjan Power Project: Sector Analysis.
5. Conclusion of the State Ecological Expertise No.18/526z issued on 05/10/2009.

Bureau Veritas Certification hereby confirms that the project participants have undertaken an analysis of environmental impacts and an environmental impact assessment in accordance with procedures as required by the host Party.

3.12. Local Stakeholder Consultation (140)

The project participants have completed a local stakeholder consultation process and that due steps were taken to engage stakeholders and solicit comments for the proposed project activity.

The steps taken to assess the adequacy of the local stakeholder consultation are described below.

Representatives from Province level Nature Protection Committee, District Government Authority and Health Protection department were invited to take part in the open



meeting held on 7 January 2010. The purpose of the consultations was to introduce participants with the main outputs of EIA of TPP and also introduce people with Clean Development Mechanism. Among 43 participants, there were representatives of Kashkadarya province Nature Protection Committee, farmers from neighborhood area, Nuristan city medical centre, school, TPP's staff, local residents. Main outputs of EIA report and information on Clean Development Mechanism were reported in power point presentation.

On January 8, 2010 the 2nd round of public consultation on construction new two CCGT units was held at Nuristan community centre in Nuristan city. Announcement about this event was published in local newspaper "Kashkadrya" (Issue #1) on 1 January 2010.

Group of Asia Development Bank consultants in November 2009 performed 1st round of stakeholder consultation in Nuristan village where construction plans were introduced to the project stakeholders. On 8th January 2010 at 15-00 2nd round of stakeholders consultations will be performed at the following address: Kashkadarya region, Nuristan village, 1st District, Amir Timur Culture Centre.

At this meeting result of the Environmental assessment performed by Asia Development Bank consultants were delivered to the attendees in the form of Power point Presentation.

Participants of the meeting were informed that EIA report is available on ADB's website. Also printed copies of EIA report were submitted to Talimarjan TTP, Kashkadrya province Nature Protection agency and Nishan district local government.

Following the open forum, the Representative from Nishan district government authority expressed their appreciation to Uzbekenergo for their support in improvement of energy supply to the region.

During their visit to the project site, the members of the BVC validation team had a meeting with the representative of local press and NGO "Ekomaktab" in SJSC "Uzbekenergo" office. The main outputs of this meeting were published in local environmental magazine "Ecological news of Uzbekistan".

In order to assess the adequacy of the local stakeholder consultation the validation team reviewed the following documentation:

1. Copy of Stakeholders meeting announcement (in Russian and Uzbek)
2. MINUTES OF THE 2nd PUBLIC CONSULTATION AT NURISTAN COMMUNITY CENTER IN NURISTAN CITY, NISHAN DISTRICT KASHKADARYA PROVINCE held ON FRIDAY, 8 JANUARY 2010
3. List of participant of 2nd round of Public Consultation on "Clean energy project on Talimarjan PP" held 8 January 2010
4. Photos of the Stakeholders meeting (Pictures from 2nd Public Consultation)
5. Power Point Presentation



6. Report on conducting second public consultation on Talimarjan Power Plant Project, 7-8 January 2010 prepared by Environmental Expert – Madina Khalmirzaeva on 18 January 2010)
7. Article in journal “Ekologiya”
<http://econews.uz/index.php/home/energetika/item/1743-uzbekenergo-made-a-significant-step-in-the-process-of-energy-greening-of-the-country.html>

Bureau Veritas Certification hereby confirms that comments that are relevant for the proposed project activity have been invited from local stakeholders, the summary of the comments received as provided in the PDD is complete, the project participants have taken due account of all comments received and have described this process in the PDD.

4. COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The PDD using methodology AM0029 “Baseline Methodology for Grid Connected Electricity Generation Plants using Natural Gas”, version 3.0 was webhosted on the UNFCCC for global stakeholders comments as per CDM requirements. The project was webhosted from 08/08/2012 to 06/09/2012.

Comments were received from one person. The project participant provided response to these comments. The validation team took due account of these comments and the respective responses while making the validation opinion. The details of the comments received, responses by the project participants and the explanation of how due account of these is taken by the validation team are attached as Appendix B with this validation report.

5. VALIDATION OPINION

Bureau Veritas Certification has performed a validation of the Talimarjan Clean Energy Generation Project, which is located in Uzbekistan. The validation was performed on the basis of UNFCCC criteria for the CDM, and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.


The validation consisted of the following three phases: i) desk review of the project design document and additional background documents; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final validation report and opinion.

The project correctly applies the approved consolidated baseline and monitoring methodology AM0029, version 3.0 and the latest versions of tools applicable to it.

By utilizing more efficient Combined Cycle Gas Turbine technology instead of more carbon intensive electricity generation on a coal fired power plant, the project is likely to result in reductions of GHG emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated emission reductions of 8,361,518 tCO₂e during the ten years of its fixed crediting period.

The review of the project design documentation and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM and the relevant host country criteria. Bureau Veritas Certification thus requests registration of the project as a CDM project activity.



Mr. Ivan Sokolov
Internal Technical Reviewer



Ms. Kateryna Zinevych
Team Leader

6. REFERENCES

Category 1 Documents:

Documents provided by project participants that relate directly to the GHG components of the project.

- /1/ PDD "Talimarjan Clean Energy Generation Project", version 3.0 dated 16/07/2012
- /2/ Financial model excel file, version 3.0 dated 16/07/2012
- /3/ CER volume estimation excel file, version 3.0 dated 16/07/2012
- /4/ PDD "Talimarjan Clean Energy Generation Project", Version 4.0 dated 07/11/2012
- /5/ Financial model excel file, Version 4.0 dated 07/11/2012
- /6/ CER volume estimation excel file, Version 4.0 dated 07/11/2012
- /7/ PDD "Talimarjan Clean Energy Generation Project", version 4.1 dated 20/11/2012
- /8/ Financial model excel file, version 4.1 dated 20/11/2012
- /9/ CER volume estimation excel file, version 4.1 dated 20/11/2012
- /10/ PDD "Talimarjan Clean Energy Generation Project", version 4.2 dated 04/02/2013
- /11/ Financial model excel file, version 4.2 dated 04/02/2013
- /12/ CER volume estimation excel file, version 4.2 dated 04/02/2013
- /13/ PDD "Talimarjan Clean Energy Generation Project", version 4.3 dated 10/04/2013
- /14/ Financial model excel file, version 4.3 dated 10/04/2013
- /15/ CER volume estimation excel file, version 4.3 dated 10/04/2013
- /16/ PDD "Talimarjan Clean Energy Generation Project", Version 4.5 dated 07/11/2013
- /17/ Financial model excel file, Version 4.5 dated 07/11/2013
- /18/ CER volume estimation excel file, Version 4.5 dated 07/11/2013
- /19/ PDD "Talimarjan Clean Energy Generation Project", Version 4.6 dated 06/02/2014
- /20/ PDD "Talimarjan Clean Energy Generation Project", Version 4.7 dated 30/06/2014
- /21/ CER volume estimation excel file, Version 4.7 dated 30/06/2014
- /22/ Approved baseline methodology AM0029 "Baseline Methodology for Grid Connected Electricity Generation Plants using Natural Gas", version 3.0
- /23/ Tool to calculate the emission factor for an electricity system, version 02.2.1 applied in the PDD versions 3.0 and 4.0
- /24/ Tool to calculate the emission factor for an electricity system, version 03.0.0 applied in the PDD versions 4.1 and 4.2
- /25/ Tool for the demonstration and assessment of additionality, version 06.0.0



- applied in the PDD version 3.0
- /26/ Tool for the demonstration and assessment of additionality, version 06.1.0 applied in the PDD versions 4.0 and 4.1
- /27/ Tool for the demonstration and assessment of additionality, version 07.0.0 applied in the PDD versions 4.2 , 4.3 and 4.4
- /28/ Guidelines on the assessment of investment analysis, version 05
- /29/ Guidelines on common practice, version 02.0
- /30/ Clean development mechanism project standard, version 02.1
- /31/ Clean development mechanism project cycle procedure, version 03.1
- /32/ Clean Development Mechanism Validation and Verification Standard, version 03.0 issued by CDM Executive Board at its 65th meeting on 25/11/2010
- /33/ DNA Uzbekistan. (2010). Calculation of CO2 Emissions Factor in Generation of Electricity for National Energy System.
- /34/ IPCC Fourth Assessment Report: Climate Change 2007: Direct Global Warming Potentials
- /35/ "2006 IPCC Guidelines for National Greenhouse Gas Inventories", Volume 2 "Energy", Chapter 1
- /36/ "2006 IPCC Guidelines for National Greenhouse Gas Inventories", Volume 2 "Energy", Chapter 2
- /37/ Wikipedia: Conversion of units
- /38/ Republic of Uzbekistan: Talimarjan Clean Power Project. Environmental Assessment Report. Project Number: 43151 Date: December 2009
- /39/ Letter of Approval No CF-2-1/12-42-1 dated 19/11/2012 issued by Ministry of Economy of the Republic of Uzbekistan, DNA of the Republic of Uzbekistan
- /40/ Conclusion of the State Ecological Expertise dated 05.10.2009 No.18/526z. EIA of the project prepared by OJSC "Teploelektroproekt".
- /41/ Prior consideration of the CDM form (Version 02.0), Talimarjan Clean Energy Project.
- /42/ Letter of Approval No. 689/M/13 11640/ENV/13 dated February 22, 2013, issued by Ministry of Environment of the Czech Republic, the Czech Republic DNA for the Clean Development Mechanism
- /43/ E-mail with the confirmation of the LoA received from the Department of Energy and Climate Protection - Emission trading section of the Ministry of Environment of the Czech Republic, the Czech Republic DNA
- /44/ PDD "Talimarjan Clean Energy Generation Project", Version 4.8 dated 30/03/2015

Category 2 Documents:

Background documents related to the design and/or methodologies employed in the design or other reference documents used for cross-check.

- /1/ Initial feasibility study for the investment project on construction of two Combined Cycle Gas Turbine Power plants with the capacity of 450 MW each, 2008

- /2/ Financial Analysis Review of Talimarjan Power Project based on the Financial Management and Analysis of Projects of the Asian Development Bank
- /3/ Levelized tariff estimates prepared by the Asian Development Bank
- /4/ Criteria of loans prepared by OJSC "Teploelectroproekt"
- /5/ Currency exchange rates established by Central Bank of the Republic of Uzbekistan from 20/03/2012
- /6/ Pipeline rates for bulk consumers established by Ministry of Finance of the Republic of Uzbekistan
- /7/ Central Intelligence Agency. 2011. "World Factbook: Country Comparison-Natural Gas Proved Reserve."
- /8/ US Energy Information Administration. Country Analysis Brief.
- /9/ UNDP. 2007. Chapter 1. Uzbekistan's energy sector.
- /10/ IEA. 2009. Energy Technology System Analysis Program: Technology Brief E02; Gas-Fired Power.
- /11/ Uzbekenergo official web-site
- /12/ Uzbekenergo official web-site: Present situation and perspective development of power system
- /13/ SJSC "Uzbekenergo": Uzbekistan national electricity grid. Gross generation. Annual reports for 2006-2010
- /14/ Framework Agreement on cooperation between SJSC "Uzbekenergo" and the company "Synecta a.s." (Czech Republic) to implement the Clean Development Mechanism of the Kyoto Protocol or the project aimed at reducing greenhouse gas emissions dated 25/06/2012
- /15/ Resolution by the President of the Republic of Uzbekistan dated 29/12/2008 No. PP-1024 "On prognosis of the basic macroeconomic indexes and parameters of the national budget of the Republic of Uzbekistan for the year 2009". (Document state 11.02.2011)
- /16/ TAX CODE OF THE REPUBLIC OF UZBEKISTAN
http://fmc.uz/legisl.php?id=k_nal
- /17/ Article in journal "Ekologiya"
<http://econews.uz/index.php/home/energetika/item/1743-uzbekenergo-made-a-significant-step-in-the-process-of-energy-greening-of-the-country.html>
- /18/ Letter No.5741 dated 16/11/2012 on data for calculation of financial model from UE "Talimarjon Thermal Power Station" of SJSC "Uzbekenergo"
- /19/ Letter No.5742 dated 16/11/2012 on technical characteristics of Combined Cycle Gas Turbine from UE "Talimarjon Thermal Power Station" of SJSC "Uzbekenergo"
- /20/ Modalities of Communication Statement, version 02.1
- /21/ ADB. 2010. Report and Recommendations of the President to the Board of Directors: Proposed loans and administration of loan Republic of Uzbekistan: Talimarjan Power Project: Sector Analysis.
- /22/ Report and Recommendation of the President to the Board of Directors. Project Number: 43151. February 2010. Loan and Administration of Cofinancing. Republic of Uzbekistan: Talimarjan Power Project



- /23/ Republic of Uzbekistan: Strategy of Raising Well-being of Population of Republic of Uzbekistan.
- /24/ Resolution by the President of the Republic of Uzbekistan dated 15/12/2010 No.PP-1442 "On Priorities to Develop Industry of the Republic of Uzbekistan"
- /25/ Resolution Cabinet of Ministers of the Republic of Uzbekistan dated 04/06/2002 No. 196 "On Measures to Develop JSC "Ugol" and Program to Develop Coal Industry of the Republic for 2002-2010
- /26/ Resolution Cabinet of Ministers of the Republic of Uzbekistan dated 31/12/1991 No. 491 "On Approval of Regulation on State Ecological Expertise in the Republic of Uzbekistan"
- /27/ Annex 2 to Resolution Cabinet of Ministers of the Republic of Uzbekistan dated 31/12/1991 No. 491 "List of Activities Subject to State Ecological Expertise"
- /28/ Law of the Republic of Uzbekistan "On Metrology"
- /29/ Law of the Republic of Uzbekistan "On Efficient Use of Energy" dated 25/04/1997 No. 412-I
- /30/ Resolution by the President of the Republic of Uzbekistan dated 06/12/2006 No.PP-525 "On Measures on Realization of Investment Projects in the Frameworks of Clean Development Mechanism of Kyoto Protocol"
- /31/ Resolution Cabinet of Ministers of the Republic of Uzbekistan dated 10/01/2007 No. 9 "On Approval of Regulations on Order of Development and Realization of Investment Projects in the Frameworks of Clean Development Mechanism of Kyoto Protocol"
- /32/ Resolution Cabinet of Ministers of the Republic of Uzbekistan dated 05/06/2009 No. 150 "On Additional Measures on Development of Electrical Energy Accounting and Control System"
- /33/ Resolution Cabinet of Ministers of the Republic of Uzbekistan dated 22/08/2009 No. 245 "On Approval of Directions for Use of Electrical and Heat Energy"
- /34/ Letters to confirm the signatures of the persons who signed Modalities of Communication Statement (for Josef Fortmeier)
- /35/ Letters to confirm the signatures of the persons who signed Modalities of Communication Statement (for Nadezda Doroshenko)
- /36/ Environmental Impact Assessment Report. Republic of Uzbekistan: Talimarjan Clean Power Project. December 2009.
- /37/ Projected costs of Generation Electricity, International Energy Agency, 2010 Edition
- /38/ CO2 Emission Factor Calculation for the Uzbekistan National Grid (2010), Version 2, dated 07/02/2012
- /39/ Climate Change 2007: Working Group I: The Physical Science Basis. 2.10.2 Direct Global Warming Potentials
- /40/ Asian Development Bank Report and Recommendation of the President to the Board of Directors Proposed Loans and Administration of Loan Republic of Uzbekistan: Talimarjan Power Project Number: 43151 March 2010
- /41/ Prior consideration of the similar Uzbekenergo projects



- /42/ Letter from Synecta a.s. to BVC on decision making process and expected timeline for the CDM project "Talimarjan Clean Energy Generation Project" dated 14/01/2013
- /43/ Letter supporting LoA No CF-2-1/12-42 dated 19/11/2012 issued by Ministry of Economy of the Republic of Uzbekistan, DNA of the Republic of Uzbekistan
- /44/ E-mail letter from SJSC "Uzbekenergo" dated 14/12/2012 on preparation of Prior Consideration Form
- /45/ Copy of Stakeholders meeting announcement (in Russian)
- /46/ Copy of Stakeholders meeting announcement (in English)
- /47/ Minutes of the second public consultation at Nuristan Community Center in Nuristan city, Nishan District Kashkadarya Province on Friday, 8 January 2010
- /48/ Attendance list of the stakeholders meeting
- /49/ Photo: Talimarjan Thermal Power Plant. Steam Turbine Generator Power House
- /50/ Photo: Talimarjan Thermal Power Plant. Evaporation Pond
- /51/ Photo: Talimarjan Thermal Power Plant. FDN Column at Power House
- /52/ Photo: Talimarjan Thermal Power Plant. Cooling Water Discharge Point
- /53/ Photo: Talimarjan Thermal Power Plant. Cooling Water Intake Pump House
- /54/ Photo: Talimarjan Thermal Power Plant. Karshi Main Canal
- /55/ Photos: Stakeholders meeting
- /56/ E-mail confirmation on issueing the LoA from the Ministry of Environment of the Czech Republic
- /57/ E-mail on correction of EF for the energy system of the Republic of Uzbekistan for the year 2010
- /58/ Agreement # 382/12-2011 dated 23/12/2011 between Uztransgaz JSC and Talimarjan Thermal Power Plant on gas supply
- /59/ Feasibility study of investment project on Talimarjan PP enhancement by construction of 2 combined power plants, 370-400MW. Environmental Impact Statement
- /60/ Report on conducting second public consultation on Talimarjan Power Plant Project 7-8 January 2010
- /61/ State Environmental Expertise Conclusion # 18/5263 dated 05/10/2009, issued by the State Committee for Nature Protection of the Republic of Uzbekistan
- /62/ Extract from Bidding Document. Talimarjan Power Station Expansion Project. Construction of Two Units (400-450MW each) Combined Cycle Gas Turbine, Talimarjan Thermal Power Plant
- /63/ Letter of request # IB-01-21/1830 dated 19/09/2013 of the Chairman of the Board of SJSC "Uzbekenergo" Mr. Basidov.
- /64/ Letter #31/7-5306 dated 14/10/2013 of the Chairman of Board of the National Holding Company "UZBEKNEFTEGAZ" Mr. Fajzullayev.



- /65/ Letter from Uzbekenergo #5144 from 15 December 2011
- /66/ Letter from Uzbekenergo #5145 from 15 December 2011
- /67/ "CO2 Emission Factor Calculation for the Uzbekistan National Grid" (2010), Version 2 February 7, 2012
- /68/ Feasibility study on "Talimarjan PP enhancement by construction of two combined power plants, 450MW each" volume 1, approved 07.11.2013
- /69/ "EPC Contract Agreement (Contract No. : SJSC/UzbekEnergo/ICB-2010-001)" between Talimarjan TPP Unitary Enterprise of SJSC UZBEKENERGO and Hyundai Engineering & Construction and Daewoo International Consortium concerning Talimarjan Thermal Power Plant Expansion Project – Construction of two Combined Cycle Power Plant (Gross 929 MW) signed 07.03.2013
- /70/ Agreement No. 83/13-025 of 15.02.2013 between OJSC "Teploelectroproject" and UE "Talimarjanskaya TPP" to conduct feasibility study of the project Extension of the Talimarjan TPP and building of two CCGT 450 MW each"

**Persons interviewed:**

Persons interviewed during the validation or persons that contributed with other information that are not included in the documents listed above.

State Joint Stock Company “Uzbekenergo”

1. Galina Pavlova Head of Environment Protection Unit
2. Yulia Yakubova Specialist in Ecology and Social Issues
3. Akmal Faziyeu Project Management Unit member
4. Sanzhar Abdurahmanov Project Management Unit member
5. Mikhail Ogai Project Management Unit member
6. Alvar Guybullayev Project Management Unit member
7. Khurshid Karamatov Project Management Unit member
8. Khamid Shamsiddinov Project Management Unit member
9. Guzal Bazarbayeva Project Management Unit member
10. Dylafuz Yuldasheva Project Management Unit member

SYNECTA a.s.

11. Josef Fortmeier Chairman
12. Nadezhda Doroshenko Project manager
13. Yevgeniy Chub Engineer

UE “Talimarjon thermal power station”

14. Bakhtiyar Sharypov Director
15. Mukhamadabdulo Mamadvaliyev Deputy Chief Engineer
16. Olym Yusupov Deputy Chief Engineer
17. Safar Toshkulov Head of Capital Projects Department
18. Nizom Rakhymov Engineer-Ecologist
19. Tashkymyr Alybaev Deputy Chief of Boiler and Turbine Shop

“Uzenergonaladka”

20. Yuriy Chaban | Head of Monitoring Equipment Unit

OJSC “Teploenergoproekt”

21. Tatjana Khomova | Head of Ecology Department

Local Stakeholder: NGO “Ekomaktab”; Magazine “Ecological news of Uzbekistan”

22. Natalia Shivaldova Chairman, journalist



7. CURRICULA VITAE OF THE BVS'S VALIDATION TEAM MEMBERS

Kateryna Zinevych	Bureau Veritas Certification, Ukraine	<p>Team Leader, Climate Change Lead Verifier</p> <p>Kateryna Zinevych has graduated from National University of Kyiv-Mohyla Academy with the Master Degree in Environmental Science. She has experience at working in a professional position (analytics) involving the exercise of judgment, problem solving and communication with other professional and managerial personnel as well as customers and other interested parties at analytical centre "Dergzovnishinform" and "Bureau Veritas Ukraine" LLC. She has successfully completed IRCA registered Lead Auditor Training Course for Environment Management Systems and Quality Management Systems. She has successfully completed Climate Change Verifier Training Course and she participated as verifier in the determination/verification of 26 JI projects.</p>
Svitlana Gariyenchyk	Bureau Veritas Certification, Ukraine	<p>Team Member, Climate Change Lead Verifier</p> <p>Svitlana Gariyenchyk has 8 year working experience as a Project Manager, Head of Investment, Environmental Programs and Training Department in the company operating in the sphere of ecological audit, management and certification. She is experienced in European Union programs as an environmental protection expert.</p> <p>She followed study and training course within TACIS program on training of managers in the sphere of environmental protection. She has completed intensive training course "Lead verifier of JI projects". She is involved in the determination/verification of 60 JI projects.</p>



Sergii Verteletskyi	Bureau Veritas Certification, Ukraine	<p>Team Member, Climate Change Verifier</p> <p>Sergii Verteletskyi M.Sci. (Electrical Systems and Networks) has graduated from National Technical University of Ukraine 'Kyiv Polytechnic University' with specialty Electrical Systems and Networks. He has experience related to working in a professional position (power engineering) involved in electric&heat energy production at "Kiev TPP# 5" and "Kiev Energy Construction Company". Sergii Verteletskyi has successfully completed IRCA registered Internal Auditor Training Course for Environment Management Systems, Lead Auditor Training Course for Energy Management Systems and IRCA registered Lead Auditor Training Course for Quality Management Systems.</p> <p>Sergii Verteletskyi is involved in the determination/verification of 31 JI projects.</p>
Vyacheslav Yeriomin	Bureau Veritas Certification, Ukraine	<p>Team Member, Technical Specialist</p> <p>Vyacheslav Yeriomin Electromechanic Specialist has graduated from National Technical University of Ukraine 'Kyiv Polytechnic University' with specialty Electromechanic. He has experience related to working in a professional position (engineering) involved with the exercises in heavy machinery, electric drive, metallurgy at JSC "Inzhenernyi Dom". Vyacheslav Yeriomin has successfully completed IRCA registered Internal Auditor Training Course for Environment Management Systems and as well as IRCA registered Lead Auditor Training Course for Quality Management Systems.</p> <p>Vyacheslav Yeriomin is involved in the determination/verification of 60 JI projects.</p>



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Denis Pishchalov	Bureau Veritas Certification, Ukraine	<p>Team Member, Financial Specialist.</p> <p>Master of foreign trade, Denis Pishchalov has more than five year of experience in foreign trade and procurement. In particular one year as foreign trade manager in the Engineering Corporation (manufacturer and contractor in the municipal sector) and one year in the NIKO publishing house, one year as sales manager in the ITALCOM srl. In addition Denis has spent four years working as procurement specialist in Ukrainian Energy Service Company and two years as chief product manager in the Altset JSC. At the moment Denis is deputy director for finance and economy in the SUD of UTEM JSC.</p>
Ivan Sokolov	Bureau Veritas Certification, Ukraine	<p>Internal Technical Reviewer, Climate Change Lead Verifier, Bureau Veritas Certification Holding SAS Local Climate Change Product Manager for Ukraine</p> <p>Acting CEO Bureau Veritas Ukraine</p> <p>Doctor of Science (biology, microbiology), he has over 25 years of experience in Research Institute in the field of biochemistry, biotechnology, and microbiology. He is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered), Quality Management System (IRCA registered), Occupational Health and Safety Management System, and Food Safety Management System. He performed over 140 audits since 1999. Also he is Lead Tutor of the IRCA registered ISO 14000 EMS Lead Auditor Training Course, and Lead Tutor of the IRCA registered ISO 9000 QMS Lead Auditor Training Course. He is Lead Tutor of the Clean Development Mechanism /Joint Implementation Lead Verifier Training Course and he was involved in the determination/verification over 60 JI/CDM projects.</p>



VALIDATION REPORT

Leonid Yaskin	Bureau Veritas Certification, Russia	<p>ITR Specialist Bureau Veritas Certification Rus General Director, Climate Change Local Manager, Lead Auditor, IRCA Lead Tutor, Climate change Lead Verifier, PhD (thermal engineering)</p> <p>He has over 30 years of experience in heat and power R&D, engineering, and management, environmental science and investment analysis of projects. He worked in Krzhizhanovsky Power Engineering Institute, All-Russian Teploelectroproject Institute, JSC Energoperspectiva. He worked for 8 years on behalf of European Commission as a monitor of Technical Assistance Projects. He is a Lead auditor of Bureau Veritas Certification for Quality Management Systems (IRCA registered), Environmental Management System (IRCA registered), Occupational Health and Safety Management System (IRCA registered). He performed over 250 audits since 2002. Also he is a Lead Tutor of the IRCA registered ISO 14000 EMS Lead Auditor Training Course, and a Lead Tutor of the IRCA registered OHSAS 18001 Lead Auditor Training Course. He is an Assuror of Social Reports. He has undergone intensive training on Clean Development Mechanism /Joint Implementation and was/is involved in the determination of over 60 JI projects.</p>
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8. APPENDIX A: LARGE SCALE PROJECT ACTIVITIES VALIDATION PROTOCOL (REV 10.1)

Table 1 Validation requirements based on VVS version 03.0 (EB 70 Annex 3), PS version 02.1 (EB 70 Annex 2), PCP version 03.1 (EB 70 Annex 4), and Guidelines for completing the PDD form version 01.0 (EB 66 Annex 8)

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
Part I Cover Page					
(a) Is the title of the project activity provided?	PDD		The title of the project is "Talimarjan Clean Energy Generation Project"	OK	OK
B. Is the version number of the PDD indicated?	PDD		Version 4.7	OK	OK
C. Is the completion date of the PDD provided in DD/MM/YYYY format?	PDD		The PDD completion date is 30/06/2014	OK	OK
D. Are project participants indicated?	PDD		The project participants are: - SJSC "Uzbekenergo" - Synecta a.s.	OK	OK
E. Is the host party(ies) indicated?	PDD		The host party is Uzbekistan.	OK	OK
(b) Is the sectoral scope and selected methodology(ies) indicated?	PDD		Sectorial scope 1: "Energy Industries (renewable/ non-renewable sources)" Applied methodology: AM0029	OK	OK
(c) Is the estimated amount of annual average GHG emission reductions indicated?	PDD		The estimated amount of annual average GHG emission reductions is 836,152 tCO ₂ e	OK	OK
Part II PDD					
A. Description of project activity					
A.1 Purpose and general description of project activity					



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
A.1.1 Is a brief description of the project activity provided, including a summary of the scope of activities/measures that are to be implemented within the project activity?	PDD PS	31(b)	The proposed CDM project activity consists of constructing two new Combined Cycle Gas Turbine Power Plants (CCGT) with total capacity of 740-900 MW in the boundary of the existing Talimarjan thermal power station (TTPS) in Kashkadarya region of the Republic of Uzbekistan. The main project objective is assurance of reliable provision of electric energy to consumers of Samarkand-Bukhara region, Karshi steppe.	OK	OK
A.1.2 Are the scenario existing prior to the start of project and baseline scenario indicated?	PDD		<p>At the site of existing Talimarjan TPS four generation units are currently located with the total capacity of 3200MW and station provided electricity to the South regions of Uzbekistan republic. The latest power unit was launched in 2004 and constructed with the use of rankine-cycle technology.</p> <p>Baseline scenario is considered to be construction of natural gas fired open-cycle gas turbine</p> <p>CAR 01. As far as the project under consideration is not a “greenfield” project, the PPs should describe situation existing at the site where the project is to be implemented.</p>	CAR01	OK
A.1.3 Does it explain how the project activity will reduce	PS	31I	The project implementation will result in reduction of greenhouse gas (GHG)	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
GHG emissions or increase GHG removals?			emissions by utilizing more efficient CCGT technology instead of more carbon intensive electricity generation on a coal fired power plant.		
A.1.4 Is the estimated of annual average and total GHG emission reductions for the chosen crediting period provided?	PDD		<p>The chosen crediting period is 10 years. The estimated annual average GHG emission reductions over the crediting period is 836,152; the estimated total GHG emission reductions is 8,361,518.</p> <p>CAR 02. Please provide in Section A.1. the estimate of annual average and total GHG emission reductions for the chosen crediting period</p>	CAR02	OK
A.1.5 Is a brief description of how the project activity contributes to sustainable development provided?	PDD		<p>Construction of two power units will contribute to economic development of Kashkadarya region by increase of revenues and taxable income by means of creating new employment opportunities for local residents.</p> <p>CL 01. It is stated in the PDD Section A.1. that the project implementation will lead to the reduction of pollutants emission into atmosphere in 4.5 times. Please make it clear in the PDD where this figure comes from</p>	CL01	OK
A.1.6 In order to determine whether the description of the	VVS	65	In order to determine whether the description	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
proposed project activity in the PDD is accurate, complete, and provides an understanding of the proposed CDM project activity, does the DOE conducted a physical site visit to assess the Project? If not, please justify.			of the proposed project activity in the PDD is accurate, complete, and provides an understanding of the proposed CDM project activity, BVC validation team on 10-11 September, 2012 conducted a physical site visit to assess the project.		
A.1.7 For all other proposed CDM project activities not referred to in VVS paragraphs 65-66, does the DOE undertaken the validation of project description by reviewing available designs and feasibility studies and should conduct comparison analysis with equivalent projects, as appropriate.	VVS	67	At the moment of submission of the present project for validation there were no similar CDM projects in Uzbekistan comparable with the proposed project activity.	OK	OK
A.1.8 If the proposed CDM project activity involves the alteration of an existing installation or process, does the project description state the differences resulting from the project activity compared to the pre-project situation?	VVS	68	It is confirmed by the DOE validation team based on visiting project site as well as on the information and documented evidences submitted by the PPs, that the proposed CDM project activity doesn't involve the alteration of the existing installations or processes within the project boundary.	OK	OK
A.2 Location of project activity					
A.2.1 Is the host party(ies) indicated?	PDD		The host party is Uzbekistan	OK	OK
i. Is region/state/province etc. indicated?	PDD		Kashkadarya region (Qashkadariyo region)	OK	OK
A.2.2 Is City/Town/Community etc. indicated?	PDD		Nuristan village	OK	OK
A.2.3 Are the details of physical location of the project activity provided?	PDD		The geographical coordinates of the proposed project are: Latitude 38°28'53"37"N	CAR03 CAR04	OK OK

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			Longitude 65'37'48"34"E CAR 03. All information provided in the PDD is to be in English only. Please make due correction to Figure 2. CAR 04. The description of the physical /geographical location of the project activity shall not exceed one page. Please correct this.		
A.3 Technologies and measures					
A.3.1 Are there a list and the arrangement of the main manufacturing/ production technologies, systems and equipment involved?	PDD		The new power units apply technology of gas turbine combined cycle power plants. The CCGT plant will have capacity to generate between 740 and 900 MW of electricity. Two units, each of 370 – 450 MW capacity will be installed at the station. Each unit will consist of a gas turbine generator unit, a heat recovery steam generator, a steam turbine generator unit, and the balance of plant items. Apart of turbines and generation equipment project will included construction/installation of the following buildings/equipment: 1. The main building, including: - Engine shop; - Deaerator shop; - Boiler room;	CAR05 CL02	OK OK



CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>2. Gas compressor station; 3. Station of gas preparation; 4. Oil warehouse; 5. Electrical facilities, including power converter and all supporting equipment; 6. Hydrotechnic equipment including: - Pumping station; - Water tubes and drainage; - Other supporting equipment.</p> <p>Natural gas from Shurtan gas field will be the main and back up fuel.</p> <p>CAR 05. Please describe technologies and measures to be employed and/or implemented by the project activity in accordance with the requirements of Guidelines for completing the Project Design Document Form (Version 01.0)</p> <p>CL 02. It is stated in the PDD Section A.3. that "scenario prior the start of the implementation is mostly gas generation but with lower efficiency factor". Please specify what gas is meant.</p>		
A.3.1.1 Is the information about the age and average lifetime of the equipment based on manufacturer's specifications and industry standards, and existing and forecast installed	PDD		<p>Typical lifetime of this type of equipment is about 40 years, while according to Uzbekistan industry standards it is possible to prolong this period after technical audit which will confirm that equipment is in a good</p>	OK	OK

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
capacities, load factors and efficiencies included in the description?			condition. Basic CCGT Plant Performance Indicators are presented in Table 1 of the PDD Section A.3. It is mentioned by the project participants that at the moment of PDD development the final decision as for a manufacturer of the equipment to be installed within the frameworks of the project had not been taken, Therefore there is a range for each performance due to final technical solution which will be implemented on site.		
A.3.1.2 Are the monitoring equipments and their location in the systems included in the description?	PDD		The main monitoring equipment that is planned to be installed is Electricity meter and Gas flow meter. This equipment will be installed within the boundaries of the site of the power station which will be constructed.	OK	OK
A.3.2 Are energy and mass flows and balances of the systems and equipment included in the project activity provided?	PDD		The basic technical characteristics of the project equipment are presented in Table 1. of the PDD Section A.3.	OK	OK
A.3.3 Are the types and levels of services provided by the systems and equipment that are being modified and/or installed under the project activity and their relation, if any, to other manufacturing/ production equipment and systems outside the project boundary provided?	PDD		New two Combined Cycle Gas Turbines will be constructed in the boundaries of existing Talimarjan TPS but on the spare area close to existing units. All required buildings and supportive infrastructure (as listed above) will be newly constructed.	OK	OK
A.3.4 Does the description clearly explain how the same types and levels of services provided by the project	PDD		In the baseline scenario the same amount of the electric power will be supplied to	CAR06	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
activity would have been provided in the baseline scenario?			Uzbekistan energy system by combination of existing thermal power stations and new constructed power stations (50% operating margin, 50% build margin). More detailed information is provided in Annex 4. CAR 06. Please clearly describe how the same types and levels of services provided by the project activity would have been provided in the baseline scenario		
A.3.5 Is a list of facilities, systems and equipment in operation under the existing scenario prior to the implementation of the project activity provided?	PDD		It is mentioned in the PDD that on the site of Talimarjan TPS the following equipment existed prior to the implementation of the project activity: <ul style="list-style-type: none"> - four generation units with the total capacity of 3200MW; - necessary pumping equipment (water pumps, oil pumps etc.); - ventilation equipment; - and also heating boiler with all supporting equipment to heat the building of the station. CAR 07. Please list the facilities, systems and equipment in operation under the existing scenario prior to the implementation of the project activity	CAR07	OK
A.3.6 Is a list of facilities, systems and equipment in the	PDD		For the list of facilities, systems and equipment in the baseline scenario, please,	CAR08	

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
baseline scenario provided?			refer to the above section of the present validation protocol. CAR 08. Please list the facilities, systems and equipment in the baseline scenario		OK
A.3.7 Is a description of how technologies and measures and know-how to be used are transferred to the Host Party(ies) included?	PDD		Technology and know-how transfer will be performed by introducing the state-of-the-art equipment produced by one of the leading manufacturers (according to feasibility study report, the only possible option is purchasing equipment from the countries-manufacturers like Japan, USA, Germany, Switzerland, Italy and India). It is also foreseen to attract foreign technical consultants to perform assembling and installation of the equipment. CAR 09. Please describe how technologies and measures and know-how to be used are transferred to the Host Party	CAR09	OK
A.4 Party(ies) and project participant(s)					
A.4.1 Are following information provided in a tabular format?					
A.4.1.1 List of project participants and parties	PDD		List of project participants and parties is provided in Section A.4. of the PDD.	OK	OK
1. Identification of Host Party	PDD		The Host Party is Uzbekistan	OK	OK
A.4.1.2 Indication whether the Party wishes to be considered as project participant	PDD		It is indicated as negative.	OK	OK

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
A.5 Public funding of project activity					
A.5.1 Is it indicated whether the project activity receives public funding from Annex I Parties?	PDD		The PDD Section A.5. states that no public funding has been provided.	OK	OK
A.5.2 In case where public funding from Annex I Parties is involved, are followings provided? (a) Information on Parties providing public funding (b) Attached in Appendix 2: the affirmation obtained from such Parties that such funding does not result in a diversion of official development assistance, is separate from, and is not counted towards the financial obligations of those Parties	PS	34	N/A	OK	OK
B. Application of selected approved baseline and monitoring methodology					
B.1 Reference of methodology					
B.1.1 Is the selected methodology (ies) indicated with exact reference (number, title and version)?	PDD		AM0029: Baseline Methodology for Grid Connected Electricity Generation Plants using Natural Gas, Version 03.	OK	OK
B.1.2 Are the baseline and monitoring methodologies selected by the project participants the valid versions of those approved by the Board?	VVS	70	The applied methodology is approved by the Board and is valid from 30 May 2008.	OK	OK
B.1.3 Are there any tools and other methodologies to which the selected methodology indicated?	PDD		The above methodology refers to the following tools:	OK	OK

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<ul style="list-style-type: none"> • Tool for the demonstration and assessment of additionality • Tool to calculate the emission factor for an electricity system 		
B.1.4 Has specific guidance and/or clarifications provided by the Board with respect to the approved methodology and any applicable tools been applied?	VVS	71	No specific guidance and/or clarifications provided by the Board with respect to the approved methodology and any applicable tools have been applied	OK	OK
B.1.5 Is there any deviation or clarification requested for the approved methodology?	VVS	78-81	There is no deviation or clarification requested for the approved methodology	OK	OK
B.2 Applicability of methodology					
B.2.1 Is the selected baseline and monitoring methodology applicable to the project activity and that the selected version valid at the time of submission of the proposed project activity for registration?	VVS	73-75	<p>The last version 03 of the selected baseline and monitoring methodology AM009 applicable to the project activity was valid at the time of submission of the proposed project activity for registration.</p> <p>CAR 10. Volumes, as well as measurement units concerning natural gas reserves presented in Section B.2. (Table 2) and Section B.4. (Alternative D) are not consistent. Please bring them in line.</p>	CAR10	OK
B.2.2 Does the project activity meet each of the applicability conditions of the approved methodology or other methodology component referred to therein?	PDD VVS	76	<p>The project activity meets each of the applicability conditions of the approved methodology.</p> <p>It should be specially admitted that though</p>	CL03	OK



CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			new turbines power plant will be constructed close to the existing capacities of the power plant, according to CDM terms, the project presented is considered to be a new power plant which goes in line with the AM0029 applicability conditions and has been successfully proved by the project participants. CL 03. Please include in the justification of methodology applicability the definition of a new plant.		
B.3 Project boundary					
B.3.1 Are the emission sources and GHGs included in the project boundary for the purpose of calculating project emissions and baseline emissions described using the table provided?	PDD		The emission sources and GHGs included in the project boundary for the purpose of calculating project emissions and baseline emissions are described in Table 3 of the PDD Section B.3.	OK	OK
B.3.2 Is a flow diagram of the project boundary presented, physically delineating the project activity?	PDD		A flow diagram of the project boundary is presented in Figure 5. CAR 11. Greenhouse gases and their emission sources are not identified and clearly presented on Figure 5. The origin as well as appropriateness of their inclusion to the project boundary diagram is	CAR11	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			highly doubtful.		
B.3.3 Does the flow diagram include the equipment, systems and flows of mass and energy described? In particular, is the emission sources and GHGs included in the project boundary and the data parameters to be monitored indicated in the diagram?	PDD VVS	82	<p>The flow diagram includes the equipment, systems and flows of mass and energy described, the emission sources and GHGs included in the project boundary and the data parameters to be monitored are indicated in the diagram.</p> <p>CAR 12. The emission sources and GHGs included in the project boundary and the data parameters to be monitored indicated in the diagram are not vividly presented. Please identify and clearly present greenhouse gases and their emission sources in Figure 5.</p>	CAR12	OK
B.4 Establishment and description of baseline scenario					
B.4.1 Is an explanation how the baseline scenario is established in accordance with the selected baseline methodology provided?	PDD VVS	89	The baseline scenario is established in accordance with the selected baseline methodology AM0029. All steps of the methodology have been considered correctly.	OK	OK
B.4.2 When establishing the baseline scenario, and where “future anthropogenic emissions by sources are projected to rise above current levels due to the specific circumstances of the host Party”, do	PS	42	As it was stated in the PDD, Section B.4, Step 1, Step 1: ‘Identify plausible baseline scenarios’, Scenario D ‘Import of electricity from connected grids, including the possibility of new interconnections’	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
the project participants follow the “Guidelines on the consideration of suppressed demand in CDM methodologies”?			<p>“Primary energy demand in Uzbekistan was 48.5 million tons of oil equivalent (MTOE) in 2006, and is projected to increase to 72.6 MTOE in 2030 (an annual growth rate of 1.8%). The country has about 1.8 trillion cubic meters of proven natural gas reserves, 590 million barrels of proven oil reserves, and about 3.0 billion tons of recoverable coal reserves. Thus Uzbekistan has a substantial export potential and the government is seeking ways to augment its petroleum and natural gas output, to increase natural gas exports, and to draw direct foreign investment to the energy sector.”</p> <p>Therefore it is considered that there is no suppressed demand in energy resources in Uzbekistan as it is estimated that energy resources will sufficient to cover both increasing primary energy demand and export to the foreign countries.</p> <p>Accordingly “Guidelines on the consideration of suppressed demand in CDM methodologies” was not applied for the considered project as the considered project will not influence either baseline technology or baseline service level as described in the</p>		



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			"Guidelines on the consideration of suppressed demand in CDM methodologies".		
B.4.3 Does the approved methodology that is selected by the proposed CDM project activity prescribe the baseline scenario and hence no further analysis is required?	VVS	113, 115	The applied methodology AM0029 does not prescribe the baseline scenario and hence further analysis is required.	OK	OK
B.4.4 If no, does the PDD identify credible alternatives to the project activity in order to determine the most realistic baseline scenario?	VVS	114	<p>The following alternatives to the project scenario prescribed by the selected methodology and analyzed by the project participants include:</p> <ul style="list-style-type: none"> - The project activity not implemented as a CDM project –Combined-cycle gas turbi–e - Scenario A; - Power generation using natural gas, but technologies other than the project activity -, natural gas fired power generation using different type of technologies such as B (1): sub-critical power plant and B (2): super-critical power plant ; as well as B (3): Natural gas fired open-cycle gas turbine (OCGT). <p>Power generation technologies using energy sources other than natural g–s - As coal-fired power plants can provide both base load and peak-load capacities, C (1): sub-critical and</p>	OK	OK

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			<p>C (2): super critical coal-fired power plants;</p> <p>It should be specially noted that the alternative scenario <i>Import of electricity from connected grids, including the possibility of new interconnections</i> prescribed by the selected methodology has not been considered by the project participants as a plausible one. Substantial justification for its exclusion is presented in the PDD Section B.4.</p>		
<p>B.4.5 Does the list of alternatives given in the PDD ensure that:</p> <p>(a) One of the options that the project activity is undertaken without being registered as a proposed CDM project activity</p> <p>(b) The list contains all plausible alternatives</p> <p>(c) The alternatives comply with all applicable and enforced legislation</p>	VVS	114	<p>The list of alternatives given in the PDD ensure that:</p> <p>(a) One of the options that the project activity is undertaken without being registered as a proposed CDM project activity, that is Scenario A</p> <p>(b) The list contains all plausible alternatives</p> <p>(c) The alternatives comply with all applicable and enforced legislation</p> <p>CAR 13. Summary sensitivity analysis is demonstrated in Table 7. Please correct the</p>	<p>CAR13 CAR14</p>	<p>OK OK</p>



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			mistake on page 12. of the PDD. CAR 14. Key characteristics of thermal power stations in Uzbekistan and a ration of fuel consumption (2010) are provided in Table 11, not 13 as it is stated in sub-step a. Please correct the numbering of tables		
B.4.6 Has any procedure contained in the methodology to identify the most reasonable baseline scenario, been correctly applied?	PDD VVS	89	Refer to table 2 below. The procedures contained in the methodology to identify the most reasonable baseline scenario have been correctly applied		
B.4.7 Is the baseline identified for the proposed project activity the scenario that reasonably represents the anthropogenic emissions by sources of GHGs that would occur in the absence of the proposed project activity?	VVS	88	Based on calculation of levelized cost of electricity production and sensitivity analysis conducted the project participants conclude that B(3) scenario <i>Natural gas fired open-cycle gas turbine (OCGT)</i> is the most economically attractive scenario and therefore the most plausible scenario.	OK	OK
B.4.8 Does the selected methodology require use of tools (such as the “Tool for the demonstration and assessment of additionality” and the “Combined tool to identify the baseline scenario and demonstrate additionality”) to establish the baseline scenario?	VVS	89	The selected methodology requires use of “Tool for the demonstration and assessment of additionality” version 07.0.0 that was valid at the time of submission for validation of the final PDD version 4.5. According to “Tool for the demonstration and assessment of additionality” version 06.1.0, it is to be applied immediately without any	OK	OK

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			grace period.		
B.4.9 Does the methodology require several alternative scenarios to be considered in the identification of the most reasonable baseline scenario?	VVS	90	<p>The methodology requires several alternative scenarios to be considered in the identification of the most reasonable baseline scenario. For more detail, please, refer to Section B.4.4. of the present validation protocol.</p> <p>CL 04. It is said in the Sector analysis conducted for Talimarjan Power Project by Asian Development Bank that “since 1991...two power capacity expansion projects have been completed, which are (i) the rehabilitation of two 300 MW steam cycle units at the Syrdarya TPP, and (ii) the construction of one 800 MW steam cycle unit at the Talimarjan TPP. Please explain why a steam cycle technology isn’t considered among the alternative baseline scenarios?</p>	CL04	OK
B.4.10 Are the documents and sources referred to in the PDD correctly quoted and interpreted and are they crosschecked with other verifiable and credible sources, such as local expert opinion, if available?	PDD VVS	91	<p>The documents and sources referred to in the PDD correctly quoted and interpreted. The are also crosschecked with the opinion of SJSC “Uzbekenergo” officials and Talimarjan TPP specialists.</p> <p>CAR 15. The amount of available installed</p>	CAR15 CAR16	OK OK



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			capacity for power generation presented in Section B.4. (Alternative B.) differs from the one in Section A.1. Please make them consistent. CAR 16. Please provide the origin/source of figures presented in Table 5 more specifically.		
B.4.11 Does the PDD provide a description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed project activity?	VVS	92	Natural gas fired open-cycle gas turbine (OCGT) is the identified baseline scenario and a plausible option in countries where non market based pricing is practiced. In Uzbekistan, most thermal power plants (TPPs) have been operated for almost 40 to 50 years with a lower efficiency rate and it requires substantial replacement and/or rehabilitation in order to meet increasing demands. [†] TPPs account for between 84 and 92% of the country's total electricity capacity in Uzbekistan, depending on hydro power output. [‡] Hence, more efficient OCGT would enable to supply energy in a more efficient way and would be also a plausible option for	CAR17	OK

[†] ADB. 2010. Report and Recommendations of the President to the Board of Directors: Proposed loans and administration of loan Republic of Uzbekistan: Talimarjan Power Project: Sector Analysis. Available at: <http://www2.adb.org/Documents/RRPs/UZB/43151/43151-02-uzb-ssa.pdf>

[‡] UNDP. 2007. Chapter 1. Uzbekistan's energy sector. Available at: http://www.undp.uz/en/download/?type=publication&id=79&parent=1927&doc=8147&bcsi_scan_7823DFCE46415F3E=1

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			Uzbekistan. CAR 17. Please provide a description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed project activity		
B.4.12 Have all applicable CDM requirements been taken into account in the identification of the baseline scenario for the proposed project activity?	VVS	93	All applicable CDM requirements have been taken into account in the identification of the baseline scenario for the proposed project activity.	OK	OK
B.4.13 Has relevant national and/or sectoral policies and circumstances (type E+ or E-), such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector been taken into account?	VVS	93	Relevant national and sectoral policies and circumstances, such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector have been taken into account. They are given a profound consideration while regarding the applicability conditions as well as setting the baseline.	OK	OK
B.4.14 Is a transparent description of the baseline scenario provided?	PDD		The description of the baseline is provided in a transparent manner.	OK	OK
B.5 Demonstration of additionality					
B.5.1 Is the project activity demonstrated additional in accordance with the selected methodology (ies)?	PDD		Refer to table 2 below. According to the selected methodology	OK	OK



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			AM0029, the assessment of additionality comprises the following steps: Step 1: Benchmark investment analysis Step 2: Common practice analysis Step 3: Impact of CDM registration If all 3 steps are satisfied, then the project is considered additional. This step-by-step analysis was applied by the PPs.		
B.5.2 Where the procedure in the selected methodology(ies) and/or tool involves several steps, is it described how each step is applied and is the outcome of each step transparently documented?	PDD		To apply Step I the project participants decided to use equity IRR for the benchmark analysis. Step II involved applying Step 4 (common practice analysis) of the Tool for the Demonstration and Assessment of Additionality (Version 7.0.0). Step III was applied by way of comparing equity IRR with the established benchmark. CAR 18. There is no the PPs' conclusion that all 3 steps of the additionality analysis prescribed by the methodology AM0029 are satisfied and thus, the project activity demonstrated is additional.	CAR18	OK
B.5.3 Is the method selected to demonstrate additionality clearly indicated?	PDD		Benchmark investment analysis is the method selected.	OK	OK



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B.5.4 If investment analysis is used:					
B.5.4.1 Are all relevant assumptions and parameters used in the analysis listed?	PDD		<p>The assumptions and parameters used in the analysis are presented In Table 9 of the PDD Section B.5.</p> <p>The following documents that justify values in the investment calculation were provided by the PPs and reviewed by the validation team:</p> <ul style="list-style-type: none"> - Feasibility Study Report - ADB estimation on the own consumption, technical losses and commercial losses - ADB projection on the electricity tariffs - Loan rates and expected loan term for the project financing - USD exchange rate - Natural gas tariffs (source – Uztransgas site) - Presidential Degree # PP-1024 from 29/12/2008 - Tax code of the Republic of Uzbekistan - Water costs were taken from the reference information provided by Uzbekenergo which is an estimation but the most accurate up to the date., as well as the letter from 	OK	OK



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			Uzbekenergo with initial data which were used for Investment analysis calculation. CAR 34. Neither Sec.1 nor sec.A.3 of the PDD provide certain and unequivocal information on the total capacity of the CCGT units to be installed in course of the project activity. The indicated figures are “between 740 and 900 MW”. Then in sec. B2 the total rated capacity is indicated as 820 MW. The Feasibility study report provides the figure of 450 MW for each of two CCGT units. Please, indicate in the PDD and provide reliable documentary evidence for the total installed capacity of the CCGT units to be installed at Talimarjan.		
B.5.4.2 Is the latest version of the “Guidelines on the assessment of investment analysis” applied?	VVS	118	The latest version 05 of this Tool was applied by the PPs.	OK	OK
B.5.4.3 Is project activity one of the following cases in regards to investment analysis:	VVS	119			
B.5.4.3.1 The proposed project activity would produce no financial or economic benefits other than CDM-related income;	VVS	119(a)	N/A	OK	OK
B.5.4.3.2 The proposed project activity is less economically or financially attractive than at least one other credible and realistic	VVS	119(b)	The proposed project activity is less economically or financially attractive than at least one other credible and realistic alternative	OK	OK



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alternative;					
B.5.4.3.3 The financial returns of the proposed project activity would be insufficient to justify the required investment.	VVS	119(c)	N/A	OK	OK
B.5.4.4 Has the accuracy of financial calculations carried out for investment analysis been verified as follows:	VVS	120			
B.5.4.4.1 Determine the suitability of the financial indicator selected by the project participants and conduct a thorough assessment of all parameters and assumptions used in calculating such financial indicators, and determine the accuracy and suitability of these parameters using available evidence and applying its expertise in relevant accounting practices	VVS	120(a)	<p>CAR19. Benchmark analysis is the proper method of investment analysis for the present project.</p> <p>Unfortunately the benchmark used for calculations is not exact. Please note that as per Guidelines for the Assessment of Investment analysis article 12 “Local commercial lending rates or weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR”. The developer is using default values for cost of equity without accounting for cost of debt. The cost of debt shall be based on average loan rates in the country. In addition, please take attention that when calculating cost of debt it shall be adjusted for inflation in order to obtain cost of debt in real terms to be compatible with default cost of equity which in turn is indicated in real terms too. Guidelines on the assessment of investment analysis</p>	CAR19	OK



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			<p>page 8 recommends using long term inflation forecasts issued by IMF. The forecast published in IMF World Economic Outlook annually</p> <p>Having calculated the cost of debt you may now calculate WACC in real terms as per article 18 of the Guidelines and employ the result as your benchmark value.</p> <p>CAR 35. Please, indicate the entitlement and the status of the extract “financial analysis” in the file: “02 - ADB - Own consumption, technical losses, commercial losses.jpg” that supports the figures of Technical losses, (13.0%) and Commercial losses, (7.0%). Please provide the copy of title or coverpage of this document to confirm its validity.</p> <p>CAR 36. The value of annual electricity supply provided by ADB at file: “03 - ADB - Electricity tariffs” differs from that used in the investment analysis. In this view please, clarify the applicability of this document and all other financial metrics.</p> <p>CAR 37. Total Costs of project provided in the ADB report [file: 43151-023-uzb-pam-updated] is 1280.00 mln USD that does not match with figures used in the investment analysis.</p> <p>CAR 38. Please, provide the objective documentary evidence to confirm the</p>		



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			<p>following metrics using in the investment analysis:</p> <ul style="list-style-type: none"> • Maintenance and management costs, • Water costs • Capital repair, <p>CAR 39. Please, provide the objective evidence to support the following assumptions used for levelized costs calculation for the alternatives other than the project:</p> <ul style="list-style-type: none"> • Investment costs • Implementation period • Maintenance and management costs, • Operation hours <p>Please, explain the costs distribution for each alternative per years of construction.</p> <p>In order to support the investment values, please, use the publicly available sources or comparable cases as the reference to information provided just in one letter from the project operator cannot be considered objective.</p> <p>CAR 40. The electricity output in the alternatives selected for the investment analysis is different from the project hence these alternatives are incomparable. Please justify.</p>		
B.5.4.4.2 Cross-check the parameters against third-	VVS	120(b)	The documents listed in Section B.5.4.1. of	CL05	OK



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party or publicly available sources, such as invoices or price indices			the present validation protocol were reviewed by the validation team. CL 05. Please provide the source (preferably publicly available) of the all basic financial inputs employed including: electricity tariffs, price of natural gas, investment costs, water costs, property and other tax rates		
B.5.4.4.3 Review, as appropriate, feasibility reports, public announcements and annual financial reports related to the proposed project activity and the project participants	VVS	120(c)	The documents listed in Section B.5.4.1. of the present validation protocol were reviewed by the validation team.	OK	OK
B.5.4.4.4 Assess the correctness of computations carried out and documented by the project participants; and	VVS	120(d)	CAR 20. Please provide us with the financial model Excel file with cells unprotected in order we could check the calculations properly. CL 06. Please confirm whether investment and operational costs, tariffs and prices indicated with VAT included or not. Please note that the general approach is to make calculations using all input values (investment costs, tariffs and prices) with VAT excluded.	CAR20 CL06	OK OK
B.5.4.4.5 Assess, where applicable, the sensitivity analysis by the project participants to	VVS	120(e)	A sensitivity analysis was performed by altering the project cost, plant load factor, and	OK	OK

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determine under what conditions variations in the result would occur, and the likelihood of these conditions.			fuel cost. Deviations of +10% have been taken into account in the above decisive assumptions. Summary results of the sensitivity analysis are provided in the Table 10 of the PDD Section B.5.		
B.5.4.5 If benchmark analysis is used:					
B.5.4.5.1 Is the benchmark clearly indicated?	PDD		<p>According to 'Guidance on the assessment of investment analysis' default value of expected return on equity - 13.25% was used for benchmark investment analysis of Uzbekistan energy industry project.</p> <p>The most appropriate financial indicator chosen for the project activity is project IRR.</p> <p>The calculation results indicate that the proposed project without CDM revenue is considered as financially unattractive due to its IRR is 8.83% which is lower than the benchmark, and it with CDM revenue as financially attractive due to its IRR is 13.76% which is higher than the benchmark.</p>	OK	OK
B.5.4.5.2 Is the type of benchmark applied suitable for the type of financial indicator presented?	VVS	121(a)	The type of benchmark applied is suitable for the type of financial indicator presented.	OK	OK
B.5.4.5.3 Does the risk premiums applied in determining the benchmark reflect the risks associated with the project type or activity?	VVS	121(b)	<p>As stated in the PDD Project participants decided to use equity IRR for the benchmark analysis.</p> <p>Accordingly the value of the benchmark</p>	OK	OK



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			<p>(13.25%) was taken from the 'Guidelines on the assessment of investment analysis', page 12, as a default value of expected return on equity for Uzbekistan energy industry project.</p> <p>Additionally at the page 7 of the Guidelines it is clarified that</p> <p>"The risk premium for the Host country is estimated using the Moody's rating for the host country as a proxy for this risk. For those countries for which rating by Moody's are not available, the risk premiums were derived based on comparison with countries with similar gross national product per capita. The national product per capita has shown to be one of the key economic determinants which have a strong statistical power for country credit ratings."</p> <p>It is also stated in the Guidelines that For the purpose of determining the adjustment factor to reflect the risk of project in different sectoral scopes, three different project categories are distinguished.</p> <p>Therefore applied default value as 'Guidance on the assessment of investment analysis' reflects the risk associated with the project activity as described above.</p>		



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B.5.4.5.4 Is it reasonable to assume that no investment would be made at a rate of return lower than the benchmark?	VVS	121(c)	<p>As per 'Guidelines on the assessment of investment analysis', version 05, paragraph15, page 4, the cost of equity can be determined by selecting the value provided in Appendix A as a simple default option.</p> <p>Further following the logic of the investment analysis we assume that parties would act as a reasonable investor and would select the most profitable option for financing. In our case they would not invest the project until expected rate of return is equal or above the benchmark.</p> <p>Of course it is a simplification because any investor may make decisions taking into account different non-market factors which cannot be formalized, but it is reasonable assumption. The same approach is provided by the AM0029 Methodology, Version 3.0 and Tool for demonstration and assessment of additionality, Version 07.0.0 for determination of the baseline scenario. It is stated that baseline scenario is the most financially attractive alternative and no other option are provided.</p> <p>To summarize it is assumed reasonable that no investment would be made at a rate of</p>	OK	OK

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			return lower than the benchmark because there are no any other incentives for the project participants to finance the project rather than potential income from the project implementation.		
B.5.4.6 If cost comparison is used:					
B.5.4.6.1 Are the scenarios compared described?	PDD		N/A	OK	OK
B.5.4.7 If PPs rely on values from FSR:	VVS	122			
B.5.4.7.1 Has the FSR been the basis of the decision to proceed with the investment in the project?	VVS	122(a)	FSR was developed in 2009-2010 and have preliminary estimation. Therefore for project decision making Uzbekenergo estimation provided in the Dec 2011 were applied. CL 07. Please make it clear whether the FSR has been the basis of the decision to proceed with the investment in the project	CL07	OK
B.5.4.7.2 Are the values used in the PDD and associated annexes fully consistent with the FSR? If inconsistencies occur, was the appropriateness of the values validated?	VVS	122(b)	The values used in the PDD and associated annexes are fully consistent with the FSR CL 08. If available, please, provide FSR for the project	CL08	OK
B.5.4.7.3 On the basis of its specific local and sectoral expertise, is confirmation provided, by cross-checking or other appropriate manner, that the input values from the FSR are valid and applicable at the time of the investment	VVS	122(c)	The input values from the FSR are valid and applicable at the time of the investment decision CL 14. Interest payment rates seem to be	CL14 CL15	OK OK



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decision?			underestimated. Please check them and make appropriate corrections. CL 15. The electricity cost presented is 0,037 USD/KWh VAT included; same value is used in calculations. At the same time calculations made in the previous PDD versions, do not include VAT. Please make it clear		
B.5.5 If barriers analysis is used:					
B.5.5.1 Is the “Guidelines for objective demonstration and assessment of barriers” followed?	PS	48	N/A	OK	OK
B.5.5.2 Is it ensured that only the most relevant barriers selected?	PDD		N/A	OK	OK
B.5.5.3 Is the credibility of the barriers justified with key facts and/or assumptions and the rationale?	PDD		N/A	OK	OK
B.5.5.4 Is it ensured that issues that have a direct impact on the financial returns of the project activity are not considered as barriers but assessed by investment analysis? This does not refer to either: (a) Risk related barriers (b) Barriers related to the unavailability of sources of finance for the project activity	VVS	125	N/A	OK	OK
B.5.5.5 Were the barriers determined as real?	VVS	126(a)	N/A	OK	OK
B.5.5.6 Were the barriers determined as preventing	VVS	126(b)	N/A	OK	OK



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the implementation of the project activity but not the implementation of at least one of the possible alternatives?					
B.5.6 Common Practice Analysis					
B.5.6.1 If the project type is first-of-its kind, do the project participants consider “Guidelines on additionality of first-of-its-kind project activities”?	VVS PS	128 49(a)	According to methodology AM0029, page 03, 04 there is no step to assess whether the project is the first-of-its-kind, but there is a step to described ‘Common practice analysis’ which should be performed in accordance with ‘Guidelines on common practice’. The same requirements are provided in the ‘Tool for the demonstration and assessment of additionality’ Version 07.0.0. Definition first-of-its-kind is applied in Barrier analysis, specifically when barriers due to prevailing practice are discussed which are not relevant for project under AM0029. Therefore for the project activity Guidelines on common practice’ was applied as required by AM0029 Methodology.	OK	OK
B.5.6.2 If the project type is not first-of-its kind, has common practice analysis been conducted considering “Guidelines on common practice”?	VVS PS	128 49(b)	The common practice analysis has been conducted by applying Step 4 (common practice analysis) of the Tool for the Demonstration and Assessment of Additionality (Version 07.0.0).	OK	OK
B.5.6.3 Was it assessed whether the geographical scope of the common practice analysis is appropriate for the assessment related to the	VVS	129(a)	According the Tool for the Demonstration and Assessment of Additionality sub-step a: <i>Analyze other activities similar to the</i>	OK	OK



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project activity's technology or industry type?			<p><i>proposed project activity</i>, the projects are considered similar, if they are in the same country/region and/or rely on a broadly similar technology, are of a similar scale, and take place in a comparable environment with respect to regulatory framework, investment climate, access to technology, access to financing, etc. The PPs provide the data on operation of thermal power plants of Uzbekenergo SJSC in 2006-2010 (Table 11 of the PDD Section B.5.) that primarily rely on natural gas as energy fuel.</p> <p>In summary, the energy system of Uzbekistan has no combined heat and power plants using natural gas until now. There are no similar projects in Uzbekistan comparable with the proposed project activity.</p> <p>Going forward, the PPs state that construction of two CCGT power plants in Tashkent and Navoi was considered in 2011. However, those projects are considered by Uzbekenergo only as CDM project activity which confirms that this is not the common practice without additional CDM revenues.</p>		
B.5.6.4 Was it determined to what extent similar and operational projects, other than CDM project activities, and have been undertaken in the defined region?	VVS	129(b)	In order to determine to what extent projects, other than CDM project activities are similar and operational, the PPs provide in Table 11 of the PDD Section B.5. a comparison of	OK	OK



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			Uzbecenergo operated power stations based on such parameters as fuel consumption, electricity output, useful heat output, ratio of fuel spent for producing electricity/heat and the year of commissioning.		
B.5.6.5 Are similar and operational projects, other than CDM project activities, already “widely observed and commonly carried out” in the defined region? Is it assessed whether there are essential distinctions between the proposed CDM project activity and the other similar activities?	VVS	129(c)	<p>Distinctions between the project activity and similar activities is that Combined Cycle Gas Turbine technology is more efficient but more expensive than some of the other scenarios (Open Cycle Gas Turbine technology) and therefore would not be implemented under the baseline scenario because of its high costs.</p> <p>CL 09. Please provide explanation whether there are essential distinctions between the proposed CDM project activity and the other similar activities</p>	CL09	OK
B.5.7 Prior consideration of the clean development mechanism					
B.5.7.1 If the project activity start date prior to the date of publication of the PDD for stakeholder comments, were the CDM benefits considered necessary in the decision to undertake the project as a proposed CDM project activity?	PDD VVS	105	The project activity start date 07/03/2013 is prior to the date of publication of the PDD for stakeholder comments (Period for comments: 08 Aug –2 - 06 Sep 12). The CDM benefits were considered necessary in the decision to undertake the project as a proposed CDM project activity which is confirmed by signing Framework Agreement between	OK	OK



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			Uzbekenergo and Synecta a.s. which, in its turn confirms the project participants commitments for project implementation. (For more details, please, refer to Section 3.7. of the present VR)		
B.5.7.2 Is the start date of the project activity, reported in the PDD, the earliest date at which either the implementation or construction or real action of a project activity begins?	VVS	106	The start date of the project activity, reported in the PDD, is the earliest date at which the implementation a project activity begins. It is confirmed by signing "EPC Contract Agreement (Contract No.: SJSC/UzbekEnergo/ICB-2010-001)" between Talimarjan TPP Unitary Enterprise of SJSC UzbekEnergo and Hyundai Engineering & Construction and Daewoo International Consortium concerning Talimarjan Thermal Power Plant Expansion Project – Construction of two Combined Cycle Power Plant (Gross 929 MW) of 07.03.2013	OK	OK
B.5.7.3 If the project activity requires construction, retrofit or other modifications, is it ensured that the date of commissioning not considered as the project activity start date?	VVS	106	Information contained in Table 8. <i>Implementation timeline of the proposed CDM activity of the PDD</i> clearly demonstrates that the date of commissioning is not considered as the project activity start date. According to the project implementation schedule, the expected date of construction start is April 2013.	OK	OK
B.5.7.4 Is it a project activity with a start date on or after 02 August 2008, or before 02 August	VVS	106	It is a project activity with a start date after 02 August 2008.	OK	OK



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2008?					
B.5.7.5 For a project activity with a start date on or after 02 August 2008, are the following provisions to be satisfied:					
B.5.7.5.1 Has the PP informed the Host Party DNA and the UNFCCC secretariat in writing of the commencement of the project activity and of their intention to seek CDM status within 180days of the project activity start date?	PS VVS	27 107	CDM prior consideration form for the project was sent to the Host Party DNA and the UNFCCC secretariat on 14th of December 2012 that is within 180 days of the project start day on 07/03/2013.	OK	OK
B.5.7.5.2 Do the project participants inform the secretariat of the progress of the project activity every subsequent two years after the initial notification, until the PDD regarding the project activity has been published for global stakeholder consultation or, a new baseline and monitoring methodology is proposed or a revision of an approved baseline and monitoring methodology is requested for the project activity before the start date?	PCP	9	It is confirmed that Prior consideration form for Talimarjan Clean Energy Generation Project was received on 14 Dec 2012. Please see UNFCCC site http://cdm.unfccc.int/Projects/PriorCDM/notifications/index.html	OK	OK
B.5.7.6 For a project activity with a start date before 02 August 2008, are the following elements to be satisfied:	VVS	108			
B.5.7.6.1 Are evidence of their awareness of the CDM prior to the project activity start date, and that the benefits of the CDM were a decisive factor in the decision to proceed with the	PS VVS	28(a) 108	N/A	OK	OK



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project provided?					
B.5.7.6.2 Are evidence that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation provided?	PS VVS	28(b) 108- 110	N/A	OK	OK
B.5.7.6.3 Is an implementation timeline of the proposed CDM project activity provided?	PS	28(c)	N/A	OK	OK
B.6 Emission reductions					
B.6.1 Explanation of methodological choices					
B.6.1.1 Does the PDD explain how the methods or methodological steps in the selected methodology, for calculating project emissions, baseline emissions, leakage emissions and emission reductions are applied?	PDD VVS	96	<p>For calculating project emissions, baseline emissions, leakage emissions and emission reductions the PPs fully apply the methodological steps stipulated by selected methodology AM0029.</p> <p>CAR 21. Default emission factors for fugitive CH₄ upstream emissions are presented in Table14. Please correct the mistake on page 18 of the PDD.</p> <p>CAR 22. There is an excessive and at times needless citation of the Methodology AM0029 provisions used by the PPs in description of ERs estimation. Please make them more project specific</p>	CAR21 CAR22	OK OK

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B.6.1.2 In case the methodology(ies) include different scenarios or cases, does the PDD indicate and justify which scenario or cases applies to the project activity?	PDD		N/A	OK	OK
B.6.1.3 In case the methodology(ies) provide different options to choose from, does the PDD indicate and justify which option is chosen for the project activity?	PDD VVS	97	N/A	OK	OK
B.6.1.4 In case the methodology (ies) allow different default values, does the PDD indicate and justify which of the default values have been chosen for the project activity?	PDD		N/A	OK	OK
B.6.2 Data and parameters fixed ex ante					
B.6.2.1 If data and parameters will not be monitored throughout the crediting period of the proposed project activity but have already been determined and will remain fixed throughout the crediting period, are all data sources and assumptions: (a) Appropriate and correct? (b) Applicable to the proposed CDM project activity? (c) Resulting in a conservative estimate of the emission reductions?	PDD VVS	98	Among the data and parameters that will not be monitored throughout the crediting period of the proposed project activity but have already been determined and will remain fixed throughout the crediting period, there are: <ul style="list-style-type: none"> • CO₂ emission factor per unit of energy of natural gas • The oxidation factor of natural gas • Emission factor for upstream fugitive methane emissions of natural gas • Conversion factor from MWh to GJ They are taken from the recognized sources such as IPCC and therefore are to be	OK	OK



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			considered as (a) Appropriate and correct (b) Applicable to the proposed CDM project activity (c) Resulting in a conservative estimate of the emission reductions		
B.6.2.2 For each piece of data or parameter, are tables provided in accordance with the instructions?	PDD		Tables for each piece of data or parameter are provided in accordance with the instructions	OK	OK
B.6.3 Ex ante calculations of emission reductions					
B.6.3.1 Is a transparent ex ante calculation of project emissions, baseline emissions (or, where applicable, direct calculation of emission reductions) and leakage emissions expected during the crediting period, applying all relevant equations provided in the approved methodology provided?	PDD		<p>The ex-ante calculations are made in full compliance with the methodology applied.</p> <p>CAR 23. In tables of parameters fixed ex ante in Section B.6., please, indicate the “purpose of data” as required by the Guidelines for completing the PDD form. Formulas the references are made to are to be numbered or identified in any other way.</p> <p>CAR 24. In tables of parameters to be monitored in Section B.7.1., please, indicate the “purpose of data” as required by the Guidelines for completing the PDD form. Formulas the references are made to are to</p>	CAR 23 CAR24	OK OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			be numbered or identified in any other way.		
B.6.3.2 Is the information how each equation is applied, in a manner that enables the reader to reproduce the calculation, provided?	PDD		<p>All equations are presented in a manner that enables the reader to reproduce the calculation.</p> <p>CAR 25. It is said in Table 1 that load factor for CCGT performance is taken at 85%. As it presently can't be documentary evidenced, please, make it vivid in the PDD that at the time of validation this value is taken as an esteemed one.</p>	CAR25	OK
B.6.3.3 Is the information of additional background information and/or data provided in Appendix 4, including relevant electronic spreadsheets?	PDD		Annex 4 contains information on CO2 Emission Factor Calculation for the Uzbek National Grid.	OK	OK
B.6.3.4 Is a sample calculation for each equation used provided, substituting the values used in the equations?	PDD		<p>Sample calculations for baseline emissions, project emissions, leakages, emissions reduction calculations are provided as per the methodology applied.</p> <p>CL 10. Please explain the source of data for the ratio 3.6. If it is a default value used in calculations, it must be included in the table of parameters fixed ex ante.</p> <p>CL 11. Please explain the source of data for the value 0,574 (generation efficiency) used in calculations.</p>	CL10 CL11	OK OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
B.6.4 Summary of the ex ante estimates of emission reductions					
B.6.4.1 Are the results of the ex ante estimation of emission reductions for all years of the crediting period, provided in a tabular format?	PDD		The results of the ex ante estimation of emission reductions for all years of the crediting period are provided in a tabular format in Section B.6.4. of the PDD.	OK	OK
B.7 Monitoring Plan					
B.7.1 Data and parameters to be monitored					
B.7.1.1 Is specific information on how the data and parameters that need to be monitored would actually be collected during monitoring included?	PDD		Information on how the data and parameters that need to be monitored is presented in the tables of parameters for monitoring in Section B.7.1. of the PDD. CL 12. Please provide in the respective PDD section specific information on how the data and parameters that need to be monitored such as annual quantity of natural gas consumed in the project activity, its calorific value would actually be collected during monitoring included	CL12	OK
B.7.1.2 For each data or parameter, is the information completed, in a tabular format:					
B.7.1.2.1 The source(s) of data that will be actually used for the proposed project activity (e.g. which exact national statistics). Where several sources may be used, explain and	PDD		It is stated in the PDD that the calorific value of the gas would be provided by the supplier; recorded and verified by the project proponent through lab test. Local or country specific data or IPCC default value (in order	CAR26 CL12 CL13	OK OK OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
justify which data sources should be preferred.			<p>of preference) will be used in case data from NG supplier is not accessible.</p> <p>CAR 26. Please make it clear in the PDD Section B.7.1 what source of data was used for establishing NCV_{NG} value presented for this parameter</p> <p>CL 12. Please provide documentary evidence for the value of annual quantity of NG consumed in the project activity presented in Table B.7.1.of the PDD.</p> <p>CL 13. For parameters 3 and 4 in table B.7.1 please provide a source of data more specifically by indicating the volume, table page, etc</p>		
B.7.1.2.2 Is an estimate of the data/ parameter that will be monitored during the crediting period provided?	PDD		The estimates of the data/ parameters that will be monitored during the crediting period are provided as required in the respective tables.	OK	OK
B.7.1.2.3 Is the estimate provided in the PDD for this monitored data or parameter reasonable?	VVS	98	The estimate provided in the PDD for this monitored data or parameter is reasonable?	OK	OK
B.7.1.2.4 Where data or parameters are to be measured, does it specify the measurement	PDD		The measurement methods and procedures, standards to be applied, accuracy of the		



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
methods and procedures, standards to be applied, accuracy of the measurements, person/entity responsible for the measurements, and, in case of periodic measurements, the measurement intervals?			<p>measurements, person/entity responsible for the measurements, and, in case of periodic measurements, the measurement intervals are provided in the respective tables of parameters in Section B.7.1.as required (annual quantity of fuel consumed in the project activity; NCV of natural gas).</p> <p>CAR 27. Where data or parameters are to be measured, please, specify the measurement methods and procedures, standards to be applied, accuracy of the measurements, person/entity responsible for the measurements, and, in case of periodic measurements, the measurement intervals</p>	CAR27	OK
B.7.1.2.5 Is a description of the QA/QC procedures including the calibration procedures, where applicable, provided?	PDD		<p>Natural gas meter will be subject to regular maintenance and tested for accuracy once in six months as per the industry practice and prescribed standards. The meter reading as per the meter installed by natural gas supplier will be considered for CDM purposes and the meter installed by project proponent will be used to for cross checking the supplier's meter.</p> <p>At the project level data of natural gas meter will be cross-checked with accounting data. All information will be regularly requested from Uzbekenergo.</p>	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			The calorific value of natural gas will be provided by the supplier, recorded and verified by the project proponent through lab test.		
B.7.1.2.6 Is the purpose of data indicated?	PDD		The purpose of data is indicated as required in the respective tables of parameters.	OK	OK
B.7.1.3 Is this monitoring plan based on the approved monitoring methodology applied to the proposed CDM project activity?	VVS	131	The monitoring plan applied by the PPs to the project goes fully in line with the one prescribed by the approved monitoring methodology AM0029.	OK	OK
B.7.1.4 Does the monitoring plan contain all necessary parameters?	VVS	132(a)	The monitoring plan contains all necessary parameters needed for ER calculations.	OK	OK
B.7.1.5 Do the means of monitoring described in the plan comply with the requirements of the methodology including applicable tool(s)?	VVS	132(a)	The monitoring plan applied by the PPs to the project goes fully in line with the one prescribed by the approved monitoring methodology AM0029.	OK	OK
B.7.1.6 Are the monitoring arrangements described in the monitoring plan feasible within the project design?	VVS	132(b)	The monitoring arrangements described in the monitoring plan are considered feasible within the project design.	OK	OK
B.7.1.7 Are the means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, sufficient to ensure that the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified?	VVS	132(b)	The means of implementation of the monitoring plan are sufficient to ensure that the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified	OK	OK
B.7.2 Sampling plan					



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
B.7.2.1 Are there any data and parameters monitored in section B.7.1 above to be determined by a sampling approach?	PDD		N/A	OK	OK
B.7.2.2 Is a description of the sampling plan provided in accordance with the recommended outline for a sampling plan in the "Standard for sampling and surveys for CDM project activities and programme of activities"?	PDD		N/A	OK	OK
B.7.3 Other elements of monitoring plan					
B.7.3.1 Is the operational and management structure that the project operator will implement in order to monitor emission reductions and any leakage generated by the project activity, described in the PDD?	PDD PS	56(a)	SJSC Uzbekenergo established a dedicated full-time Project Management Unit (PMU) responsible for management of the proposed activity including monitoring plan. The PMU will be responsible to collect record and document all the related monitoring records. The operational and organizational structure as well as division of responsibilities for the monitoring process is shown in the organization structure in Figure 6 (Section B.7.3. of the PDD)	OK	OK
B.7.3.2 Are the responsibilities for and institutional arrangements for data collection and archiving clearly indicated?	PDD PS	56(c)	The responsibilities and institutional arrangements for data collection and archiving are clearly indicated in the organization structure presented in Figure 6. This structure may be adjusted due to actual project implementation and distribution of responsibilities with Uzbekenergo.	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
B.7.3.3 Does the monitoring plan include provisions to ensure that data monitored and required for verification and issuance be kept and archived electronically for two years after the end of the crediting period or the last issuance of CERs, whichever occurs later?	PS	56(b)	Provisions to ensure that data monitored and required for verification and issuance be kept and archived electronically for two years after the end of the crediting period are included in the tables of parameters subject to monitoring in Section B.7.1. of the PDD.	OK	OK
B.7.3.4 Does the monitoring plan include uncertainty levels, methods and the associated accuracy level of measuring instruments to be used for various parameters and variables?	PS	56(e)	The measuring instruments include the electricity meters and the natural gas flow meters. The monitoring plan includes precisions levels of measuring instruments to be used for the project parameters.	OK	OK
B.7.3.5 Does the monitoring plan include specifications of the calibration frequency for the measuring equipments?	PS	56(f)	It is stated in the monitoring plan that all meters and instruments will be installed, maintained and calibrated regularly as per industry practices and in accordance with the maintenance schedule programmed at the start of the operation and recalibrated according to the plants performance requirement.	OK	OK
C. Duration and crediting period					
C.1 Duration of project activity					
C.1.1 Start date of project activity					
C.1.1.1 Is the start date of the project activity stated, in the format of DD/MM/YYYY?	PDD		The start date of the project activity is stated in the required format.	OK	OK
C.1.1.2 Does it describe how the start date has been determined and provide evidence to support	PDD		The start date of the project 25/06/2012 is the date of signing Framework Agreement for	CAR28	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
this date?			<p>considered CDM project by the project participants. (Refer to document No.14 in the list of Category 2 Documents in Section References of the present Validation report).</p> <p>CAR 28. The memorandum of understanding between "Uzbekene"go" and Synecta (Framework Agreement) submitted by the PPs for validation, was signed on 25/06/2012. Please, correct this date in the respective PDD sections.</p> <p>Upon request for review the project start date was changed to 07/03/2013 according presented "EPC Contract Agreement (Contract No.: SJSC/UzbekEnergo/ICB-2010-001)" between Talimarjan TPP Unitary Enterprise of SJSC UzbekEnergo and Hyundai Engineering & Construction and Daewoo International Consortium concerning Talimarjan Thermal Power Plant Expansion Project – Construction of two Combined Cycle Power Plant (Gross 929 MW) of 07.03.2013 (Refer to document No.69 in the list of Category 2 Documents in Section References of the present Validation report).</p>		
C.1.2 Expected operational lifetime of project activity					



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
C.1.2.1 Is the expected operational lifetime of the project activity stated in years and months?	PDD		The expected operational lifetime of the project activity is 25 years (300 months).	OK	OK
C.2 Crediting period of project activity					
C.2.1 Type of crediting period					
C.2.1.1 Is the type of crediting period chosen for the project activity stated?	PDD		The fixed type of crediting period is chosen for the project activity.	OK	OK
C.2.1.2 In case a renewable crediting period was chosen, does it indicate whether it is the first, second or third?	PDD		N/A	OK	OK
C.2.2 Start date of crediting period					
C.2.2.1 Is the start date of crediting period stated in the format of DD/MM/YYYY?	PDD		The start date of crediting period is stated in the required format.	OK	OK
C.2.3 Length of crediting period					
C.2.3.1 Is the length of crediting period stated in years and months?	PDD		CAR 29. Please specify the last date of the crediting period to assure the credited period indicated doesn't exceed 10 years. Otherwise the length of the crediting period may be taken as 11 years.	CAR29	OK
D. Environmental impacts					
D.1 Analysis of the environmental impacts					
D.1.1 Is a summary of the analysis of the environmental impacts of the project activity and references to all	PDD		Summary of the analysis of the environmental impacts of the project activity	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
related documentation provided?			and references to all related documentation is provided		
D.2 Environmental impact assessment					
D.2.1 If an environmental impact assessment is required, are conclusions and references to all related documentation provided?	PDD		<p>Uzbekenergo has prepared an EIA that has been reviewed and approved by the Glavgoosecoexpertiza (department under State Nature Protection Committee). All other relevant permits, approvals and licenses needed to construct the new turbines are to be obtained before the CCGT units start to operate. The permissions needed are already indicated in paragraph 41 (page 9) of the EIA. References to all related documentation are provided in the PDD.</p> <p>CAR 30. The reference 26 made to the permissions needed is incorrect. Please correct it.</p>	CAR30	OK
D.2.2 Have the project participants undertaken an analysis of environmental impacts activity, including transboundary impacts, and whether those impacts are considered significant by the project participants or the host Party?	VVS	134	<p>The EIA report of the proposed project shows that the proposed project activity has no significant impact on environment. Details of the report are summarized in Section D.1. of the PDD. References to all related documentation are also provided in the PDD.</p> <p>The PDD also states the following: “In the framework of EIA it was considered that project has no significant transboundary</p>	CAR31	OK



CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			effects; all concentrations occur within the site boundary (please see page 34 of EIA)." CAR 31. Please make it clear in the PDD whether an analysis of transboundary impacts has been undertaken and whether those impacts are considered significant by the project participants or the host Party.		
D.2.3 If the host Party requires an environmental impact assessment, have the environmental impact assessment approved by local government?	VVS	135	Please refer to comment in section D.2.1. above	OK	OK
E. Local stakeholder consultation					
E.1 Solicitation of comments from local stakeholders					
E.1.1 Did the project participants complete a local stakeholder consultation process and that due steps were taken to engage stakeholders and solicit comments for the proposed project activity?	VVS	138	The project participants completed a local stakeholder consultation. Due steps taken to engage stakeholders and solicit comments for the proposed project activity are described in Section E.1. of the PDD. CAR 32. The language of the PDD is English. Please provide a summary of the advertisements presented in Section E.1. translated into English	CAR32	OK
E.1.2 Is the process by which comments from local stakeholders have been invited provided?	PDD		Please refer to comment in section E.1.1. above	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
E.2 Summary of comments received					
E.2.1 Are stakeholders that have made comments identified?	PDD		Representatives from Province level Nature Protection Committee, District Government Authority and Health Protection department were invited during meetings on 7 January 2010. Among 43 participants, there were representatives of Kashkadarya province Nature Protection Committee (2), farmers from neighbourhood area (3), Nuristan city medical centre (2), school (1), TPP's staff (28), local residents. 16 women have participated in this meeting. They represented TPP's staff, medicine service, farmers and local residents group.	OK	OK
E.2.2 Have comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity been invited?	VVS	139 (a)	Comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity have been invited and provided with the due responses from the consultants. For stakeholders comments and responses to them, please, refer to Section E.2. of the PDD.	OK	OK
E.2.3 Is the summary of comments provided complete?	PDD VVS	139 (b)	Following the open forum, the Representative from Nishan district government authority expressed their appreciation to Uzbekenergo for their support in improvement of energy supply to the region.	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl	Final Concl
			No negative comments were received which required further clarification.			
E.3 Report on consideration of comments received						
E.3.1 Is information provided to demonstrate that all comments received have been considered?	PDD VVS	139 (c)	<p>Comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity have been invited and provided with the due responses from PPTA consultants.</p> <p>For stakeholders comments and responses to them, please, refer to Section E.2. of the PDD.</p>		OK	OK
F. Approval and authorization						
F.1 General						
F.1.1 Is it indicated whether the letter(s) of approval from Party(ies) available at the time of submitting the PDD to the validating DOE?	PDD		Letters of approval from both Parties involved were submitted to the DOE in the course of validation process.		OK	OK
F.2 Approval			COUNTRY A	COUNTRY B		
F.2.1 Has the DNA of each Party indicated as being involved in the proposed CDM project activity in section A.3 of the PDD provided a written letter of approval?	VVS	38	The DNA of the Republic of Uzbekistan is indicated as being involved in the proposed CDM project activity in section A.3 of the	The DNA of the Czech Republic is indicated as being involved in the proposed CDM project activity in section A.3 of the PDD, provided a	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl	Final Concl
			PDD provided a written letter of approval No. CF-2-1/12-42-1 dated 19/11/2012 issued by its DNA, Ministry of Economy of the Republic of Uzbekistan.	written letter of approval No.689/M/13 11640/ENV/13 dated 22/02/2013 issued by its DNA, the Ministry of Environment of the Czech Republic.		
F.2.2 Does the letter of approval from DNA of each Party confirm that : (a) The Party is a Party of the Kyoto Protocol (b) The participation is voluntary (c) In the case of the host Party, the proposed CDM project activity contributes to the sustainable development of the country (d) Refers to the precise proposed CDM project activity title in the PDD being submitted for registration	VVS	39	The letter of approval from DNA of Host Party confirms that : a) The Party is a Party of the Kyoto Protocol b) The participation is voluntary c) In the case of the host Party, the proposed CDM project activity contributes to the sustainable development of the country	The letter of approval from the Czech Republic confirms that : a) It has ratified the Kyoto Protocol to the United Nations Framework Convention on Climate Change on November 15, 2001 b) The participation is voluntary c) It approves the project as a CDM project in accordance with Article 12 of the Kyoto Protocol and the relevant rules, decisions, guidelines,	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl	Final Concl
			d) Refers to the precise proposed CDM project activity title in the PDD being submitted for registration	modalities and procedures		
F.2.3 Is(are) the letter(s) of approval unconditional with respect to (Error! Reference source not found.) above?	VVS	40	The letter of approval is unconditional	The letter of approval is unconditional	OK	OK
F.2.4 Has(ve) the letter(s) of approval been issued by the respective Party's DNA? If there is doubt with respect to (Error! Reference source not found.) above, was it verified with the DNA that the letter of approval is valid for the proposed CDM project activity under validation?	VVS	41,42	The LoA has been issued by Ministry of Economy of the Republic of Uzbekistan, a DNA of the Republic of Uzbekistan. It was verified by the validation team that the letter of approval is valid for the proposed CDM project activity. LoA is listed under No.30 in Category 1 Documents of Section 6 References of the	The LoA has been issued by Ministry of Environment, a DNA of the Czech Republic. It was verified by the validation team that the letter of approval is valid for the proposed CDM project activity. LoA is listed under No.33 in Category 1 Documents of Section 6 References of the present Validation report.	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			present Validation report.		
F.2.5 Does the letter of approval by the DNA of the host Party confirm the contribution of the proposed CDM project activity to the sustainable development of the host Party?	VVS	51	It is clearly stated in the LoA issued by the Host Party DNA that the proposed project will contribute to the sustainable development of Uzbekistan.	OK	OK
F.3 Authorization					
F.3.1 Has each project participant been authorized by at least one Party involved in a letter of approval?	VVS	45	The Ministry of Economy of the Republic of Uzbekistan in its LoA confirms that SJSC Uzbekenergo is authorized as project participant for Talimarjan Clean Energy Generation Project.	OK	OK
F.3.2 Is the information in tabular form in the PDD consistent with the contact information for project participants provided?	VVS	46	The contact information is provided in the PDD in tabular form; it is actual and true.	OK	OK
F.3.3 Are any entities other than those approved as project participants included in the PDD?	VVS	47	No entities other than those approved as project participants are included in the PDD.	OK	OK
F.3.4 Has the approval of participation issued from the relevant DNA? And if in doubt, was it verified with the DNA that the approval of participation is valid for the proposed CDM project participants?	VVS	48	The approval of the project is issued from the relevant DNA, it raises no doubts as far as its authenticity and validity for the proposed CDM project participants is concerned. The validating team has verified the validity of the LoA issued by the Republic of Uzbekistan	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			by placing a telephone call to its DNA. The validity and authenticity of the LoA issued by the Czech Republic has been checked by requesting and further receiving the relevant letter of confirmation from its DNA listed under No.40 in The validating team has verified the validity of the LoA issued by the Republic of Uzbekistan by placing a telephone call to its DNA. The validity and authenticity of the LoA issued by the Czech Republic has been checked by requesting and further receiving the relevant letter of confirmation from its DNA listed under No.40 in Category 1 Documents of Section 6 References of the present Validation report.		
Part III Others					
A. Appendixes of PDD					
A.1 Appendix 1: Contact information of project participants					
A.1.1 For each organization listed in section A.4 of PDD, is the table in PDD completed, with the following mandatory fields: Organization, City, postcode, Country, Telephone and Fax, e-mail and Name of contact person?	PDD		All required information on the project participants indicated in section A.4 of the PDD is provided.	OK	OK
A.2 Appendix 2: Affirmation regarding public funding					



CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
A.2.1 If applicable, is the affirmation obtained from Parties providing public funding to the project Activity attached?	PDD		N/A	OK	OK
A.3 Appendix 3: Applicability of the selected methodology(ies)					
A.3.1 Is the background information on the applicability of the selected methodology provided?	PDD		No background information on the applicability of the selected methodology is provided	OK	OK
A.4 Appendix 4: Further background information on ex ante calculation of emission reductions					
A.4.1 Is the background information on the ex ante calculation of emission reductions provided?	PDD		The background information on the ex ante calculation of emission reductions is provided	OK	OK
A.5 Appendix 5: Further background information on monitoring plan					
A.5.1 Is the background information used in the development of the monitoring plan provided?	PDD		No information used in the development of the monitoring plan other than presented in Section B.7. of the PDD is provided.	OK	OK
A.6 Appendix 6: Summary of post registration changes					
A.6.1 Is a summary of the post registration changes provided?	PDD		N/A	OK	OK
B. Global Stakeholder Consultation					
B.1.1 Is there any comment on the PDD of the proposed project activity received during Global Stakeholder	VVS	34	The PDD for the Talimarjan Clean Energy Generation Project was made publicly	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
Consultation process?			available during the period 08/08/2012 – 06/09/2012 directly on the UNFCCC CDM website to receive comments as a part of Global Stakeholder Consultation process. The comments were submitted by M.Brutus. A compilation of submitted inputs, project participants' response and BVC comments are provided in Annex B to this Validation Report.		
B.1.2 If yes, have all comments been taken into account during the validation of the proposed project activity?	VVS	35	A compilation of submitted inputs, project participants' response and BVC comments are provided in Annex B to this Validation Report.	OK	OK
B.1.3 If comments indicate that the proposed project activity does not comply with the CDM requirements and are not substantiated, is there any further clarification from the entity providing the comment?	VVS	36	For comments submitted on this issue, PP's response as well as DOE's comment? Please, refer to Appendix B Stakeholder comment (SC) #18. Please also refer to CAR 01 issued by DOE and the PPs response to it in Table 2 Resolution of Corrective Action and Clarification Requests of the Validation protocol	OK	OK
B.1.4 If yes, how comments received have been taken due account?	VVS	36	Refer to the above section	OK	OK
B.1.5 If no, are the comments as originally provided proceeded to assess?	VVS	36	Refer to the above section	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
C. Modalities of Communications (MoC)					
C.1.1 Has the corporate identity of all project participants and focal points included in MoC statement, as well as the personal identities, including specimen signatures and employment status, of their authorized signatories been validated by:	VVS	53			
C.1.1.1 Directly checking evidence for corporate, personal identity and other relevant documentation; or	VVS	54(a)	CAR 33. Please provide MoC statement as required	CAR33	OK
C.1.1.2 Notarized documentation; or	VVS	54(b)	N/A	OK	OK
C.1.1.3 Written confirmation from the project participant or the coordinating/managing entity that all corporate and personal details, including specimen signatures, are valid and accurate.	VVS	54(c)	The corporate identity of all project participants has been validated by written confirmation from the project participant that all corporate and personal details, including specimen signatures, are valid and accurate.	OK	OK
C.1.2 If (Error! Reference source not found.) above was chosen, is it ensured that the MoC statement is received from a project participant with whom the DOE has a contractual relationship?	VVS	55	The MoC statement is received from a project participant with whom the DOE has a contractual relationship	OK	OK
C.1.3 If (Error! Reference source not found.) above was chosen, is it ensured that the official who submits the MoC statement to the DOE and the official who signed the written confirmation (if a different person) is/are duly authorized to do so on behalf of the respective project participant?	VVS	56	It is ensured that the officials who submit the MoC statement to the DOE and the official who signed the written confirmation are duly authorized to do so on behalf of the respective project participant	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
C.1.4 If it is unable to validate the requirements by applying Error! Reference source not found. to Error! Reference source not found. above, are any further validation activities performed?	VVS	57	N/A	OK	OK
C.1.5 Has the latest version of the form "Modalities of Communication statement" (F-CDM-MOC) been used?	VVS	60(a)	The latest version of the form "Modalities of Communication statement" (F-CDM-MOC) 02.1 has been used	OK	OK
C.1.6 Is the information required as per F-CDM-MOC, including its annex 1, correctly completed?	VVS	60(b)	The information required as per F-CDM-MOC, including its annex 1, is correctly completed	OK	OK
C.1.7 Do the project participant's authorized signatories signing the F-CDM-MOC correspond to the project participant's authorized signatories included in F-CDM-MOC, annex 1?	VVS	60(c)	The project participant's authorized signatories signing the F-CDM-MOC correspond to the project participant's authorized signatories included in F-CDM-MOC, annex 1	OK	OK

**Table 2 Validation requirements based on AM0029 version 03 (EB 39 Annex 03)**

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
B. Applicability					
B.1 Applicable conditions					
B.1.1 Is the project activity the construction and operation of a new natural gas fired grid-connected electricity generation plant?	AM 0029	V 03	The applicability of this condition is presented and justified by the PPs in Table 2. Applicability Conditions under AM0029 Methodology, Version 3.0	OK	OK
B.1.2 Are the geographical/physical boundaries of the baseline grid clearly identified and information pertaining to the grid and estimating baseline emissions publicly available?	AM 0029	V 03	The geographical/physical boundaries of the baseline grid are clearly identified and information pertaining to the grid and estimating baseline emissions is publicly available	OK	OK
B.1.3 Is natural gas sufficiently available in the region or country? (e.g. Are future natural gas based power capacity additions, comparable in size to the project activity, not constrained by the use of natural gas in the project activity?)	AM 0029	V 03	The applicability of this condition is presented and justified by the PPs in Table 2. Applicability Conditions under AM0029 Methodology, Version 3.0	OK	OK
C. Identification of baseline scenario					
C.1.1 Did the Project participants use the following 2 steps to define the baseline scenario? 1. Identify plausible baseline scenarios 2. Identify the economically most attractive baseline scenario alternative	AM 0029	V 03	As per the AM0029 version 3.0 the following steps have been followed in order to determine the plausible baseline scenario: 1. Identify plausible baseline scenarios 2. Identify the economically most	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			attractive		
C.2 Step 1: Identify plausible baseline scenarios					
C.2.1 Did the identification of alternative baseline scenarios include all possible realistic and credible alternatives that provide outputs or services comparable with the proposed CDM project activity (including the proposed project activity without CDM benefits), i.e., all type of power plants that could be constructed as alternative to the project activity within the grid boundary (as defined in "Tool to calculate emission factor for an electricity system")?	AM 0029	V 03	All possible realistic and credible alternatives that provide outputs or services comparable with the proposed CDM project activity have been considered as per the methodology.	OK	OK
C.2.2 Did the alternatives to be analysed include, <i>inter alia</i> : <ul style="list-style-type: none"> • The project activity not implemented as a CDM project; • Power generation using natural gas, but technologies other than the project activity; • Power generation technologies using energy sources other than natural gas; • Import of electricity from connected grids, including the possibility of new interconnections. 	AM 0029	V 03	The alternatives that are subject to analysis include the following scenarios: <ul style="list-style-type: none"> • The project activity not implemented as a CDM project; • Power generation using natural gas, but technologies other than the project activity; • Power generation technologies using energy sources other than natural gas. 	OK	OK
C.2.3 Is a clear description of each baseline scenario alternative, including information on the	AM 0029	V 03	A clear description of each baseline scenario alternative, including information on the	OK	OK



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technology, such as the efficiency and technical lifetime, provided in the CDM-PDD?			technology is provided in the PDD Section B.4.		
C.2.4 If one or more scenarios are excluded, is an appropriate explanation and documentation to support the exclusion of such scenario provided?	AM 0029	V 03	Scenario D. (Import of electricity from connected grids, including the possibility of new interconnections) is not considered by the PPs as a plausible alternative to the project activity. The appropriate explanation and documentation to support the exclusion of this scenario is provided.	OK	OK
C.3 Step 2: Identify the economically most attractive baseline scenario alternative					
C.3.1 Is the economically most attractive baseline scenario alternative identified using investment analysis?	AM 0029	V 03	The remaining baseline scenario alternatives are identified using investment analysis for identifying the economically most attractive one.	OK	OK
C.3.2 Is a suitable financial indicator for all alternatives remaining after Step 1 calculated?	AM 0029	V 03	The levelized cost of electricity production in US\$/kWh chosen by the PPs as a financial indicator for investment analysis is considered by the validation team to be a suitable financial indicator. It is applied for all alternatives remaining	OK	OK
C.3.3 Are all relevant costs (including, for example, the investment cost, fuel costs and operation and maintenance costs), and revenues (including subsidies/fiscal incentives ODA, etc. where applicable), and, as appropriate, non-market costs and benefits in the case of public investors	AM 0029	V 03	The relevant costs included to the analysis are presented in Table 5 of the PDD Section B.4.	OK	OK



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included?					
<p>C.3.4 Is the investment analysis presented in a transparent manner and all the relevant assumptions provided in the CDM-PDD, so that a reader can reproduce the analysis and obtain the same results?</p> <p>Note: Critical techno-economic parameters and assumptions (such as capital costs, fuel price projections, and lifetimes, the load factor of the power plant and discount rate or cost of capital) should be clearly presented.</p> <p>Justify and/or cite assumptions.</p> <p>In calculating the financial indicator, the risks of the alternatives can be included through the cash flow pattern, subject to project specific expectations and assumptions (e.g. insurance premiums can be used in the calculation to reflect specific risk equivalents).</p> <p>Where assumptions, input data, and data sources for the investment analysis differ across the project activity and its alternatives, differences should be well substantiated. The CDM-PDD submitted for validation shall present a clear comparison of the financial indicator for all scenario alternatives. The baseline scenario alternative that has the best indicator can be pre-selected as the most plausible baseline scenario; then a sensitivity analysis shall</p>	AM 0029	V 03	<p>The investment analysis is presented in a transparent manner. The formula used for the calculation of the levelized cost of electricity Production (LCOE) is taken from the recognized source (International Energy Agency) and clearly described in the PDD so that a reader can reproduce the analysis and obtain the same results.</p> <p>The resulted calculations are presented in Table 6 of the PDD Section B.4. that clearly demonstrates which of the alternatives are to be further analyzed.</p> <p>According to the methodology, the sensitivity analysis is performed to confirm whether the conclusion made is robust.</p>	OK	OK

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be performed for all alternatives. The range of the sensitivity analysis should cover, in a realistic way, the possible variations of all key parameters that are related to the analysis and that could change over the crediting period.					
C.3.5 Is a sensitivity analysis performed for all alternatives, to confirm that the conclusion regarding the financial attractiveness is robust to reasonable variations in the critical assumptions (e.g. fuel prices and the load factor)?	AM 0029	V 03	A sensitivity analysis has been performed for both alternatives remaining after LCOE calculation to confirm that the above financial analysis is robust to reasonable variation in the critical assumptions.	OK	OK
C.3.6 If sensitivity analysis confirms the result, is the most economically attractive alternative selected as the most plausible baseline scenario?	AM 0029	V 03	Summary of the Sensitivity analysis results, where all critical assumptions were assumed to vary +/-10% according to 'Guidance on the assessment of investment analysis', Version 05 is presented in Table 7 of the PDD Section B.4.	OK	OK
C.3.7 In case the sensitivity analysis is not fully conclusive, is the baseline scenario alternative with the lowest emission rate among the alternatives that are the most financially and/or economically attractive selected? Note: If the emission rate of the selected baseline scenario is clearly below that of the project activity (e.g. the baseline scenario is hydro, nuclear or biomass power), then the project activity should not be considered to yield emission reductions, and	AM 0029	V 03	The performed sensitivity analysis demonstrates that, the assumptions made are robust to reasonable variations and the pre-selected baseline scenario, construction of the natural gas-fired OCGT power plant, is likely to remain the most economically attractive option.	OK	OK

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this methodology cannot be applied.					
D. Additionality					
D.1.1 Is the additionality of the project activity demonstrated and assessed using the following steps: Step 1: Benchmark investment analysis Step 2: Common practice analysis	AM 0029	V 03	The assessment of the additionality of the project activity has been conducted as per the guidance given in the methodology AM0029, Version 03.0 using the following steps: C.1.8 Step 1: Benchmark investment analysis Step 2: Common practice analysis	OK	OK
D.2 Step 1: Benchmark investment analysis					
D.2.1 Is it demonstrated that that the proposed CDM project activity is unlikely to be financially attractive by applying Sub-steps 2b (Option III: Apply benchmark analysis), Sub-step 2c (Calculation and comparison of financial indicators), and 2d (Sensitivity Analysis) of the latest version of the "Tool for demonstration assessment and of additionality" agreed by the CDM Executive Board?	AM 0029	V 03	According to AM0029, (Version 03).0, this step will demonstrate that the proposed CDM project activity is unlikely to be financially attractive by applying sub-step 2b (Option III: Apply Benchmark Analysis), sub-step 2c (Calculation and Comparison of Financial Indicators), and sub-step 2d (Sensitivity Analysis) of the "Tool for the Demonstration and Assessment of Additionality (Version 7.0.0).	OK	OK
D.3 Step 2: Common practice analysis					
D.3.1 Is it demonstrated that the project activity is not common practice in the relevant country and sector by applying Step 4 (common practice Analysis) of the latest version of the "Tool for demonstration	AM 0029	V 03	It is demonstrated that the project activity is not common practice in the relevant country and sector by applying Step 4 (common practice Analysis) of the latest version of the	OK	OK

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assessment and of additionality" agreed by the CDM Executive Board?			<p>"Tool for demonstration assessment and of additionality" Version 7.0.0 agreed by the CDM Executive Board (EB 70 annex 08).</p> <p>The latest version of the 'Guidelines on common practice', Version 02.0 is applied as prescribed by the "Tool for demonstration assessment and of additionality".</p>		
E. Project boundary					
E.1 Spatial extent					
E.1.1 Does the spatial extent of the project boundary include the project site and all power plants connected physically to the baseline grid as defined in "Tool to calculate emission factor for an electricity system"?	AM 0029	V 03	<p>As per AM0029 version 03.0, the spatial extent of the project boundary includes the project site and all power plants connected physically to the baseline grid as defined in "Tool to calculate emission factor for an electricity system".</p> <p>As per the above guidance, the project boundary for the project activity includes the project site which includes the power plant machinery and all the auxiliary equipment necessary to operate the power plant. All other power plants connected physically to the baseline grid are also included in the project boundary.</p> <p>The project boundary is presented in the flowchart in Figure 5 of the PDD Section B.3.</p>	OK	OK
E.1.2 In the calculation of project emissions, are only CO2 emissions from fossil fuel combustion at the	AM 0029	V 03	As per AM0029, Version 3.0 in the calculation of project emissions, only CO2	OK	OK

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project plant considered?			emissions from fossil fuel combustion at the project plant are considered.		
E.1.3 In the calculation of baseline emissions, are only CO ₂ emissions from fossil fuel combustion in power plant(s) in the baseline considered?	AM 0029	V 03	In the calculation of baseline emissions, only CO ₂ emissions from fossil fuel combustion in power plant(s) in the baseline are considered.	OK	OK
E.2 Emission sources					
E.2.1 Are the greenhouse gases and emission sources included in or excluded from the project boundary justified appropriately as shown in the Table 1 methodology?	AM 0029	V 03	Overview of the greenhouse gases included in/or excluded from the project boundary are shown in Table 3 of the PDD Section B.3.	OK	OK
F. Emission reductions					
F.1 Project emissions					
F.1.1 Since the project activity is on-site combustion of natural gas to generate electricity, are the CO ₂ emissions from electricity generation (PE _y) calculated as per equation (1) of the methodology? Note: For start-up fuels, IPCC default calorific values and CO ₂ emission factors are acceptable, if local or national estimates are unavailable.	AM 0029	V 03	The project activity is on-site combustion of natural gas to generate electricity. The CO ₂ emissions from electricity generation (PE _y) are calculated as per equation (1) of the methodology.	OK	OK
F.2 Baseline emissions					
F.2.1 Are the baseline emissions calculated by multiplying the electricity generated in the project plant with a baseline CO ₂ emission factor?	AM 0029	V 03	Baseline emissions are calculated by multiplying the electricity generated in the project plant (EG _{PJ,y}) with a baseline CO ₂ emission factor (EF _{BL,CO2,y}).	OK	OK

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<p>F.2.2 Did the project participant use for baseline CO2 emission factor the lowest emission factor among the following three options:</p> <p>For the first crediting period:</p> <p>Option 1 The build margin, calculated according to "Tool to calculate emission factor for an electricity system"; and</p> <p>Option 2 The combined margin, calculated according to "Tool to calculate emission factor for an electricity system", using a 50/50 OM/BM weight;</p> <p>Option 3 The emission factor of the technology (and fuel) identified as the most likely baseline scenario under "Identification of the baseline scenario" above, and calculated as per equation (3) of the methodology.</p> <p>Note: This determination will be made once at the validation stage based on an ex ante assessment, once again at the start of each subsequent crediting period (if applicable). If either option 1 (BM) or option 2 (CM) are selected, they will be estimated ex post, as described in "Tool to calculate emission factor for an electricity system".</p>	AM 0029	V 03	<p>As per AM0029, Version v03.0, the PPs use the lowest emission factor among the following three options:</p> <p>Option 1: Emission Factor from The Uzbekistan grid as Build Margin that is publicly made available by the Uzbekistan DNA</p> <p>Option 2: Emission Factor from grid as Combined Margin that is publicly made available by the Uzbekistan DNA</p> <p>Option 3: The emission factor of the technology (and fuel) identified as the most likely baseline scenario under "Identification of the baseline scenario" and calculated as per equation of the methodology.</p> <p>The lowest emission factor among the three options is combined margin as it is presented in Table 12 of the PDD Section B.6.1.</p>	OK	OK
F.3 Leakage					
F.3.1 Are the following leakage emission sources considered?	AM 0029	V 03	As per methodology requirements the following leakage emission sources	OK	OK

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<ul style="list-style-type: none"> Fugitive CH₄ emissions associated with fuel extraction, processing, liquefaction, transportation, re-gasification and distribution of natural gas used in the project plant and fossil fuels used in the grid in the absence of the project activity; In the case LNG is used in the project plant: CO₂ emissions from fuel combustion/electricity consumption associated with the liquefaction, transportation, re-gasification and compression into a natural gas transmission or distribution system. 			considered: C.1.9 • Fugitive CH ₄ emissions associated with fuel extraction, processing, liquefaction, transportation, re-gasification and distribution of natural gas used in the project plant and fossil fuels used in the grid in the absence of the project activity; • In the case LNG is used in the project plant: CO ₂ emissions from fuel combustion/electricity consumption associated with the liquefaction, transportation, re-gasification and compression into a natural gas transmission or distribution system.		
F.3.2 Are the leakage emissions calculated as per equation (4) of the methodology as: $LE_y = LE_{CH_4, y} + LE_{LNG, CO_2, y}$	AM 0029	V 03	The leakage emissions are calculated as per equation (4) of the methodology as: $LE_y = LE_{CH_4, y} + LE_{LNG, CO_2, y}$	OK	OK
F.3.3 For the purpose of estimating fugitive CH ₄ emissions, is equation (5) of the methodology used?	AM 0029	V 03	For the purpose of estimating fugitive CH ₄ emissions equation (5) of the methodology is used.	OK	OK
F.3.4 Is the emission factor for upstream fugitive CH ₄ emissions occurring in the absence of the project activity calculated consistent with the baseline emission factor used in equation (4) for the respective 3 options, viz. Option 1: Build Margin, Option 2: Combined Margin, Option 3: Baseline	AM 0029	V 03	As baseline CO ₂ emission factor for the project ($EF_{BL, CO_2, y}$) was calculated as a combined margin, the same approach was applied for calculation of the emission factor for upstream fugitive CH ₄ emissions ($EF_{BL, upstream, CH_4}$).	OK	OK



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technology?			<p>Values for <i>FF</i> and <i>EG</i> were taken from the document 'CO₂ Emission Factor Calculation for the Uzbekistan National Grid (2010)', Version 2 February 7, 2012, Developed by Uzbekistan DNA, and consistent with the data which were used for calculation of baseline CO₂ emission factor ($EF_{BL,CO_2,y}$).</p> <p>As no reliable and accurate national data on fugitive CH₄ emissions are available, default values ($EF_{NG,upstream,CH_4}$) provided in AM0029, Version 03 were applied. Full list of default values are provided below in the Table 13.</p>		
F.3.5 Where reliable and accurate national data on fugitive CH ₄ emissions associated with the production and, in case of natural gas, the transportation and distribution of the fuels is available, have the project participants used this data to determine average emission factors by dividing the total quantity of CH ₄ emissions by the quantity of fuel produced or supplied respectively? Where such data is not available, have the project participants used the default values provided in Table 2?	AM 0029	V 03	As no reliable and accurate national data on fugitive CH ₄ emissions are available, default values ($EF_{NG,upstream,CH_4}$) provided in Table 2 of the AM0029, Version 03 were applied.	OK	OK
F.3.6 Did the project participants use the emission factor that corresponds to the predominant source (underground or surface) currently used by coal-	AM 0029	V 03	The project participants use the emission factor for natural gas to be used for Eastern Europe and former USSR		



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based power plants in the region?					
F.3.7 Where applicable, are CO ₂ emissions from fuel combustion/electricity consumption associated with the liquefaction, transportation, re-gasification and compression of LNG into a natural gas transmission or distribution system (LE _{LNG,CO₂} ,y) estimated by multiplying the quantity of natural gas combusted in the project with an appropriate emission factor?	AM 0029	V 03	Since LNG is not used in the proposed project activity, CO ₂ emissions from LNG is considered as 0	OK	OK
F.3.8 Where reliable and accurate data on upstream CO ₂ emissions due to fossil fuel combustion/electricity consumption associated with the liquefaction, transportation, re-gasification and compression of LNG into a natural gas transmission or distribution system is available, did the project participants use this data to determine an average emission factor? Where such data is not available, did the project participants assume a default value of 6 t CO ₂ /TJ as a rough approximation?	AM 0029	V 03	N/A	OK	OK
F.3.9 Where total net leakage effects are negative (LE _y < 0), did the project participants assume LE _y = 0.	AM 0029	V 03	<p>The total leakage emissions are calculated as (-498,116 + 0) = -498,116 tCO₂e.</p> <p>According to AM0029, Version 03 where total net leakage effects are negative (LE_y < 0), project participants should assume LE_y = 0. Therefore in all further emission reduction ER calculations leakage emission were</p>	OK	OK



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			assumed to equal zero.		
F.4 Emission reductions					
F.4.1 Are emission reductions calculated as follows? $ER_y = BE_y - PE_y - LE_y$	AM 0029	V 03	To calculate the emission reductions the project participant shall apply the following equation: $ER_y = BE_y - PE_y - LE_y$	OK	OK
G. Changes required for methodology implementation in 2nd and 3rd crediting periods					
G.1.1 Did the project participants implement the changes described under baseline emissions?	AM 0029	V 03	N/A	OK	OK
III. MONITORING METHODOLOGY					
H. General requirement of monitoring activity					
H.1 Archive and measurement equipment					
H.1.1 Is it indicated in the monitoring plan that all data collected as part of monitoring should be archived electronically and be kept at least for two years after the end of the last crediting period?			It is indicated in each table of parameters subject to monitoring in the PDD Section B.7.1.	OK	OK
H.1.2 Is this monitoring methodology used in conjunction with the approved baseline methodology AM0029?	AM 0029	V 03	Approved monitoring methodology AM0029 Grid Connected Electricity Generation Plants using Non-Renewable and Less GHG Intensive Fuel is used in conjunction with the approved baseline methodology AM0029	OK	OK
H.1.3 Is it ensured that all measurements should be	AM 0029	V 03	Yes, where applicable it is mentioned and	OK	OK

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conducted with calibrated measurement equipment that is maintained regularly and checked for its functioning?			ensured for the parameters subject to monitoring in Tables of parameters. Please refer to the PDD Section B.7.1.		
I. Data and parameters monitored					
1.1 Parameters listed in the methodology					
I.1.1 Parameter X Note: <ul style="list-style-type: none"> Check if the provisions on data and parameters have been complied with. Following are monitored for project emissions: <ol style="list-style-type: none"> Annual fuel(s) consumption in project activity; Net Calorific Value(s) of the fuel used in the project activity; Fuel emission factors for fuel used in the project activity. 	AM 0029	V 03	The primary parameters for project emissions to be monitored during the crediting period of the project activity are listed below: <ul style="list-style-type: none"> <i>Parameter 1.</i> (as provided in the monitoring plan) FC_y Annual quantity of fuel consumed in the project activity (Total volume of natural gas combusted in the project plant during the year y) <i>Parameter 2.</i> NCV_y Net calorific value of the fuel (Net Calorific Value of the natural gas) <i>Parameter 4.</i> EFCO_{2,y} Emission factor (Emission factor of natural gas) <i>Parameter 7.</i> EG_{PJ,y} Electricity generated at the project power plant (Net electricity generation in the project plant (delivered to the grid)) 	OK	OK



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			during year y). Other parameters will be calculated using the primary parameters.		
I.1.2 Parameter Y Note: <ul style="list-style-type: none"> Baseline emissions will be monitored per “Tool to calculate emission factor for an electricity system”, if and as applicable. 	AM 0029	V 03	Baseline emissions will be monitored per “Tool to calculate emission factor for an electricity system” The primary parameter for baseline emissions to be monitored during the crediting period of the project activity is $EF_{BL,CO_2,y}$ Baseline CO ₂ emission factor (Baseline CO ₂ emission factor for Uzbekistan electricity grid).	OK	OK

**Table 3 Validation requirements based on Tool to Calculate the Emission Factor for an Electricity System (EB 63 Ann 19)**

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
1. Have project participants applied the six steps provided in the Tool to Calculate the Emission Factor for an Electricity System?	EB63	Ann 19	Yes, the following six steps are applied: STEP 1. Identify the relevant electricity systems; STEP 2. Choose whether to include off-grid power plants in the project electricity system (optional); STEP 3. Select a method to determine the operating margin (OM); STEP 4. Calculate the operating margin emission factor according to the selected method; STEP 5. Calculate the build margin (BM) emission factor; STEP 6. Calculate the combined margin (CM) emission factor.	OK	OK
2. Identify the relevant electricity systems (step 1)					
2.1. Has the project electricity system been identified?			For the purpose of this report, the grid emission factor of Uzbekistan is estimated for the entire Uzbekistan National Grid (the project electricity system) by using data for all thermal plants of SJSC "Uzbekenergo".	OK	OK
2.2. Has the connected electricity system been identified? If a connected electricity system is located partially or totally in Annex-I countries, is the emission factor of that connected electricity			N/A No connected electricity system have been identified. The national grid of Uzbekistan is the only grid that exists in the country. This national	OK	OK



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system considered zero?			electricity grid is a transmission and distribution line, to which all power plants in Uzbekistan are physically connected.		
2.3. Has the DNA of the host country published a delineation of the project electricity system and connected electricity systems?			No, the DNA of the host country does not publish any delineations of the project and does not use it in the further EF determination.	OK	OK
2.3.1.If yes to 2.3, are these delineations used?			N/A	OK	OK
2.3.2.If not to 2.3, has the project participants defined and justified the project electricity system and any connected electricity system.			All power stations included in Uzbekistan National Grid (the project electricity system) are provided by local DNA and are based on the official statistical data. Details of the electricity system and listed in the Appendix 4.	OK	OK
2.3.2.1. Are following criteria used to determine the existence of significant transmission constraints: ● In case of electricity systems with spot markets for electricity: there are differences in electricity prices (without transmission and distribution costs) of more than 5 percent between the systems during 60 percent or more of the hours of			N/A	OK	OK



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the year; <ul style="list-style-type: none"> The transmission line is operated at 90% or more of its rated capacity during 90% percent or more of the hours of the year. 					
2.3.2.2. Where the application of these criteria does not result in a clear grid boundary, use a regional grid definition in the case of large countries with layered dispatch systems (e.g. provincial/regional/national); In other countries, the national (or other larger) grid definition should be used by default.			N/A as grid boundary is clearly defined.	OK	OK
2.3.2.3. Are the geographical extent of the project electricity system documented transparently and all grid power plants/units connected to the system identified?			All grid power plants/units connected to the system are identified and documented transparently in local DNA official data (see Appendix 4 of the PDD).	OK	OK
2.3.2.4. For the purpose of determining the build margin emission factor, except where recent or likely future additions to the transmission capacity enable significant increases in imported electricity, is the spatial extent limited to the project electricity system?			When determining the build margin emission factor the spatial extent is limited only to the project electricity system as demonstrated in the Appendix 4.	OK	OK
2.3.2.5. For the purpose of determining the operating margin emission factor, use one			Option (c) The simple operating margin emission rate of the exporting grid is used	OK	OK

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<p>of the following options to determine the CO2 emission factor(s) for net electricity imports from a connected electricity system:</p> <p>(a) 0 tCO2/MWh; or</p> <p>(b) The weighted average operating margin (OM) emission rate of the exporting grid; or</p> <p>(c) The simple operating margin emission rate of the exporting grid; or</p> <p>(d) The simple adjusted operating margin emission rate of the exporting grid</p>					
2.3.2.6. For imports from connected electricity systems located in Annex I country(ies), is the emission factor considered as 0tons CO2 per MWh?			N/A	OK	OK
3. Choose whether to include off-grid power plants in the project electricity system (optional) (Step 2)					
<p>3.1. Have project participants chose following two options to calculate the operating margin and build margin emission factor:</p> <p>(a) Option I: Only grid power plants are included in the calculation</p> <p>(b) Option II: Both grid power plants and off-grid power plants are included in the calculation.</p>			Option I: Only grid power plants are included to calculate the operating margin and build margin emission factor	OK	OK
3.2. If option II is chosen, are data on off-grid power			N/A	OK	OK

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generation as per Annex 2 collected and ensure that the conditions outlined therein are met so that option II can be used?					
3.3. If option II is chosen, have off-grid power plants been classified as per the guidance in Annex 2 in different classes of off-grid power plants?			N/A	OK	OK
4. Select a method to determine the operating margin (OM) (step 3)					
4.1. Are the calculation of the operating margin emission factor ($EF_{grid,OM,y}$) based on one of the following methods: (a) Simple OM; or (b) Simple adjusted OM; or (c) Dispatch data analysis OM; or (d) Average OM.			D. The calculation of the operating margin emission factor ($EF_{grid,OM,y}$) is based on simple OM method.	OK	OK
4.2. If simple OM method (option a) is used, is it ensured that low-cost/must-run resources constitute less than 50% of total grid generation in: 1) average of the five most recent years, or 2) based on long-term averages for hydroelectricity production.			In accordance with “ <i>Step 3: Selection a method to determine the operating margin (OM)</i> ”, the simple operating margin (Simple OM) approach can be selected, if low-cost/must-run resources (in Uzbekistan case these are hydro power plants and CHHPs) constitute less than 50% of total grid generation. Table 1 of the CO2 Emission Factor Calculation for the Uzbekistan National Grid (2010) version 2 of	OK	OK



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			<p>07/02/2012 submitted by the Uzbekistan DNA presents <i>Salient Features of the Uzbekistan national electricity grid - Gross Generation (MWh)</i></p> <p>Since low cost/must-run plants constitute 12 % which is less than 50% of total grid generation, Simple OM method has been selected.</p> <p><i>The Simple OM emission factor</i> (EF_{grid}, OM simple, y) is defined as an average weighted CO₂emission per unit of power generated (in tCO₂/kWh) by all generating sources connected to grid. In case of the simple OM calculations for Uzbekistan, energy from renewable energy sources and from three CHPPs (operating in heat supply mode) is excluded, as these are considered low-cost/must run resources.</p> <p>For the OM calculations, data on the operation of thermal power plants operated by SJSC "UzbekEnergo" for the period 2008 – 2010 are used.</p>		
4.3. If dispatch data analysis OM (option c) is used, is it ensured that off-grid power plants are not included in the project electricity system?			N/A	OK	OK
4.4. For the simple OM, the simple adjusted OM and the average OM, is the emissions factor calculated using either data vintages of Ex ante			The emissions factor is calculated using data vintages of Ex ante option.	OK	OK



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option or Ex post option?					
4.4.1. If ex ante option is chosen,					
4.4.1.1. For grid power plants, use a 3-year generation-weighted average, based on the most recent data available at the time of submission of the CDM-PDD to the DOE for validation.			For the OM calculations, data on the operation of thermal power plants operated by SJSC "UzbekEnergo" for the period 2008 – 2010 are used.	OK	OK
4.4.1.2. For off-grid power plants, use a single calendar year within the five most recent calendar years prior to the time of submission of the CDM-PDD for validation.			N/A	OK	OK
4.4.2. If the ex post option is chosen,					
4.4.2.1. Is the emission factor determined for the year in which the project activity displaces grid electricity, is it stated that the emissions factor will be updated annually during monitoring?			N/A	OK	OK
4.4.2.2. If the data required to calculate the emission factor for year y is usually only available later than six months after the end of year y, alternatively the emission factor of the previous year y-1 may be used. If the data is usually only available 18 months after the end of year y, the emission factor of the year proceeding the previous			N/A	OK	OK

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year y-2 may be used. E. The same data vintage (y, y-1 or y-2) should be used throughout all crediting periods.					
4.5. For the dispatch data analysis OM, is the year in which the project activity displaces grid electricity used and will the emission factor be updated annually during monitoring?			The year in which the project activity displaces grid electricity is not used but the emission factor will be updated annually during monitoring. This is specified in the monitoring plan of the PDD (see Table on parameter 8 in Section B.7.1. of the PDD)	OK	OK
4.6. Has the data vintage chosen been documented in the CDM-PDD?			Yes. See Appendix 4 of the PDD	OK	OK
5. Calculate the operating margin emission factor according to the selected method (Step 4)					
5.1. Simple OM $EF_{grid,OMsimple,y}$					
5.1.1. Is the simple OM calculated by one of the following two options: 5.1.2. Option A: Based on the net electricity generation and a CO ₂ emission factor of each power unit; or 5.1.3. Option B: Based on the total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the project electricity system.			The simple OM is calculated by Option A: Based on the net electricity generation and a CO ₂ emission factor of each power unit	OK	OK

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5.1.2 Option A - Calculation based on average efficiency and electricity generation of each plant					
5.1.2.1. Is the simple OM emission factor calculated based on the net electricity generation of each power unit and an emission factor for each power unit?			Yes, simple OM is calculated based on net electricity generation of each power unit and emission factor for each unit (which derives from the type of fuel and net calorific value of the fuel.	OK	OK
5.1.2.2. Determination of CO ₂ emission factor of power unit <i>m</i> in year <i>y</i> ($EF_{EL,m,y}$)					
5.1.2.2.1. If for a power unit <i>m</i> data on fuel consumption and electricity generation is available (option A1), is the $EF_{EL,m,y}$ determined as: $EF_{EL,m,y} = \frac{\sum_i FC_{i,m,y} \times NCV_{i,y} \times E}{EG_{m,y}}$			As far as data on fuel consumption and electricity generation for all power units <i>m</i> is available, the emission factor ($EF_{EL,m,y}$) is determined according to the indicated formula	OK	OK
5.1.2.2.2. If for a power unit <i>m</i> only data on electricity generation and the fuel types used is available (option A2), is the emission factor determined based on the CO ₂ emission factor of the fuel			N/A	OK	OK



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type used and the efficiency of the power unit, as $EF_{EL,m,y} = \frac{EF_{CO2,m,i,y} \times 3.6}{\eta_{m,y}}$					
5.1.2.2.3. If for a power unit <i>m</i> only data on electricity generation is available (option A3), is the emission factor determined to be zero as a simple and conservative approach?			N/A	OK	OK
5.1.2.3. Determination of EG _{m,y}					
5.1.2.3.1. For grid power plants, is EG _{m,y} determined as per the provisions in the monitoring tables?			Yes. It is stated in the Table for parameter 7 of the PDD Section B.7.1.	OK	OK
5.1.2.3.2. For off-grid power plants, is EG _{m,y} determined using one of the following options:			N/A	OK	OK
5.1.2.3.2.1. Option 1. EG _{m,y} is determined based on (sampled) data on the electricity generation of off-grid power plants, as per the guidance in Annex 2.			N/A	OK	OK

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5.1.2.3.2.2. Option 2. $EG_{m,y}$ is determined based on (sampled) data on the quantity of fossil fuels combusted in the class of off-grid power plants m , as per the guidance in Annex 2, and the default efficiencies provided in Annex 1, as $EG_{m,y} = \frac{\sum FC_{i,m,y} \times NCV_{i,y} \times \eta_{m,y}}{3.6}$			N/A	OK	OK
5.1.2.3.2.3. Option 3. $EG_{m,y}$ is estimated based on the capacity of off-grid electricity generation in that class and a default plant load factor, as $EG_{m,y} = CAP_m \times PLF_{default,off-grid,y} \times 8760$			N/A	OK	OK
5.1.2.3.2.3.1. The default plant load factor for off-grid generation ($PLF_{default,off-grid,y}$) should be determined using one of the following two options: <ul style="list-style-type: none"> ● Use a conservative default value of 300 hours per year, assuming that the off-grid power plants would at least operate for one hour per day at six days at full capacity (i.e. 			N/A	OK	OK

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$PLF_{default, off-grid, y}$ $= 300/8760$); or <ul style="list-style-type: none"> Calculate the default plant load factor based on the average grid availability and a default factor of 0.5, assuming that off-grid power plants are operated at full load during approximately half of the time that the grid is not available, as follows: $PLF_{default, off-grid, y} = \left(1 - \frac{T_{grid, y}}{8760}\right) \times 0.5$					
5.1.3.Option B: calculation based on the total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the project electricity system.					
5.1.3.1. Are following requirements satisfied so that Option B can be used: (a) The necessary data for Option A is not available; and (b) Only nuclear and renewable power generation are considered as low-cost/must-run power sources and the quantity of electricity supplied to the grid by these sources is			N/A	OK	OK

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known; and (c) Off-grid power plants are not included in the calculation (i.e. if Option I has been chosen in Step 2).					
5.1.3.2. Is the simple OM emission factor calculated based on the net electricity supplied to the grid by all power plants serving the system, not including low-cost/must-run power plants/units, and based on the fuel type(s) and total fuel consumption of the project electricity system, as $EF_{grid,OMsimple,y} = \frac{\sum_i (FC_{i,y} \times NCV_{i,y} \times L_{i,y})}{EG_y}$			N/A	OK	OK
5.2. Simple adjusted OM $EF_{grid,OM-adj,y}$					
5.2.1 Is Simple adjusted OM calculated using the formula : $EF_{grid,OM-adj,y} = (1 - \lambda_y) \frac{\sum_m EG_{m,y} \times EF_{EL,m,y}}{\sum_m EG_{m,y}} + \lambda_y \times \frac{\sum_k EG_{k,y} \times EF_{EL,k,y}}{\sum_k EG_{k,y}}$			N/A	OK	OK

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
5.2.1.1 Are $EF_{EL,m,y}$, $EG_{m,y}$, $EG_{k,y}$ and $EF_{EL,k,y}$ determined using the same procedure as those for parameters $EF_{EL,m,y}$ and $EG_{m,y}$ in option A of the simple OM method?			N/A	OK	OK
5.2.1.2 Is the parameter λ_y determined as: <ul style="list-style-type: none"> • Step (i) Plot a load duration curve. • Step (ii) Collect power electricity generation data from each power plant/unit. • Step (iii) Fill the load duration curve. • Step (iv) Determine the Number of hours for which low-cost/must-run sources are on the margin in year y. 			N/A	OK	OK
5.3 Dispatch data analysis OM $EF_{grid,OM-DD,y}$					
5.3.1 Is the emission factor calculated as $EF_{grid,OM-DD,y} = \frac{\sum_h EG_{PJ,h} \times EF_{EL,DD,h}}{EG_{PJ,y}}$			N/A	OK	OK
5.3.2 Determination of $EF_{EL,DD,h}$					
5.3.2.1 If hourly fuel consumption data is available, is $EF_{EL,DD,h}$ determined as			N/A	OK	OK

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G. $EF_{EL,DD,h} = \frac{\sum_{i,n} FC_{i,n,h} \times NCV_{i,y} \times EF_{CO2,i,y}}{\sum_n EG_{n,h}}$					
5.3.2.2 If hourly fuel consumption data is not available, is $EF_{EL,DD,h}$ determined as H. $EF_{EL,DD,h} = \frac{\sum_{i,n} EG_{n,h} \times EF_{EL,n,y}}{\sum_n EG_{n,h}}$			N/A	OK	OK
5.3.2.3 Is CO2 emission factor of the grid power units $EF_{EL,n,y}$ determined as per the guidance for the simple OM, using the Options A1, A2 or A3?			N/A	OK	OK
5.3.3 To determine the set of grid power units n that are in the top of the dispatch, are following information obtained from a national dispatch centre: I. • The grid system dispatch order of operation for each grid power unit of the system including power units from which electricity is imported; and J. • The amount of power (MWh) that is dispatched from all grid power units in the system during each hour h that the			N/A	OK	OK

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
project activity is displacing electricity.					
5.3.4 At each hour h, stack each grid power units electricity generation using the merit order. The group of grid power units n in the dispatch margin includes the units in the top x% of total electricity dispatched in the hour h, where x% is equal to the greater of either: (a) 10%; or K. (b) The quantity of electricity displaced by the project activity during hour h divided by the total electricity generation by grid power plants during that hour h.			N/A	OK	OK
5.4 Average OM $EF_{grid,OM-ave,y}$					
5.4.1 Is the average OM emission factor calculated as the average emission rate of all power plants serving the grid, using the methodological guidance as described under (a) for the simple OM, but also including the low-cost/must-run power plants in all equations?			N/A	OK	OK
6 Calculate the build margin (BM) emission factor (step 5)					
6.1 In terms of vintage of data, whether ex ante or ex post is chosen? And whether the option chosen is documented in the CDM PDD?			The build margin is determined ex ante. It is explicitly documented in Appendix 4 of the PDD	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
6.2 Is the sample group of power units m used to calculate the build margin determine as,					
6.2.1 Identify the set of five power units, excluding CDM;			See Table 5.2 of the PDD Appendix 4	OK	OK
6.2.2 Identify the units that comprise at least 20% of the system generation, excluding CDM;			The total electricity generation of the power pants indicated in Table 5 of the PDD Appendix 4 in 2010 amounted for 11,05% of total generation of the national system. As it makes less than 20% of total grid generation, two recently built plants are added to the sample set. They are presented in Table 5.2 of the PDD Appendix 4	OK	OK
6.2.3 Select the set of power units that comprises the larger annual generation			See the above section of the present protocol	OK	OK
6.2.4 Is there at least one power unit older than 10 years in the set?			There are two power units older than 10 years in the set. They are Novo-Angren TPP (1985) and Mubareck CHPP (1985)	OK	OK
6.2.4.1 If no, is the resulting set used to calculate the build margin?			N/A	OK	OK
6.2.4.2 If yes,					
6.2.4.2.1 Are power units older than 10 years and include power units registered in the CDM excluded?			Yes. Power units older than 10 years and include power units registered in the CDM are excluded	OK	OK

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
6.2.4.2.2 Does the set comprise at least 20% of generation?			The resulting set of seven power plants presented 22.07% of the total generation in 2010	OK	OK
6.2.4.2.2.1 If yes, is the resulting set used to calculate the build margin?			The resulting set is used to calculate the build margin	OK	OK
6.2.4.2.2.2 If no, are power units older than 10 years until the set comprises 20% of generation considered and the resulting set is used to calculate the build margin?			N/A	OK	OK
6.3 Is the build margin emissions factor calculated as $EF_{grid,BM,y} = \frac{\sum_m EG_{m,y} \times EF_{EL,m,y}}{\sum_m EG_{m,y}}$			Yes, the build margin is calculated in accordance with the formula presented	OK	OK
6.3.1 Is the CO2 emission factor of each power unit m $EF_{EL,m,y}$ determined as per the guidance for the simple OM?			The CO2 emission factor of each power unit m $EF_{EL,m,y}$ is determined as per Option A1 of the guidance for the simple OM except for CHHPs. Considering that fuel consumption data cannot be presented as separate data for electricity and heat generation and taking into account the conservative approach, Option A2 of the "Tool to calculate the emission factor for an electricity system" Version 02.0.1 was applied.	OK	OK

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
6.3.2 If power units included in the build margin m correspond to the sample group $SET_{sample-CDM \rightarrow 10 yrs}$, is option A2 from guidance for simple OM used for conservative purpose?			See the above section	OK	OK
7 Calculate the combined margin emissions factor (step 6)					
7.1 Is the calculated of combined margin based on one of the following methods: (a) Weighted average CM; or (b) Simplified CM.			The weighted average CM method (option A) is used to calculate the combined margin	OK	OK
7.2 If option A is chosen, are the default values used for W_{OM} and W_{BM} correctly followed?			Yes, the value applied for W_{OM} and W_{BM} is 0.5. For wind and solar project the $W_{OM}= 0.75$ and $W_{BM}= 0.25$ are applied.	OK	OK
7.3 If option B is chosen, is it ensured that : <ul style="list-style-type: none"> The project activity is located in a Least Developed Country (LDC) or in a country with less than 10 registered CDM projects at the starting date of validation; and The data requirements for the application of step 5 above cannot be met. 			N/A	OK	OK
7.4 If yes, the W_{BM} and W_{OM} consistent with the value provided in the guideline?			Yes. See paragraph 4 of the PDD Appendix 4.	OK	OK

Table 4 Validation requirements based on Guidelines on the Assessment of Investment Analysis (version 05) EB 62 Annex 5

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
1. General issues					
1.1 Period of assessment					
1.1.1. Is it ensured that the period of assessment is not limited to the proposed crediting period of the CDM project activity?	EB 62 Ann 5	3	The assessment of investment analysis includes the time period from 2013 to 2030. This includes 15 years of the plant operation out of 25 years of project activity expected lifetime. The length of the crediting period of the project is 01/07/2015 – 30/06/2025.	OK	OK
1.1.2. Is it ensured that project IRR or equity IRR calculation as a preference reflects the period of expected operation of the underlying project activity (technical lifetime), or - if a shorter period is chosen - include the fair value of the project activity assets at the end of the assessment period?	EB 62 Ann 5	3	Equity IRR calculations reflect 15 years of the plant operation out of 25 years of project activity expected lifetime. At the end of the assessment residual value of the activity assets was added, then discounted and included in the cash inflows.	OK	OK
1.2. Fair value					
1.2.1. If applicable, is the fair value of any project activity assets at the end of the assessment period included as a cash inflow in the final year?	EB 62 Ann 5	4	As demonstrated in the Excel file 'Financial analysis for 'Talimarjan Clean Energy Generation Project' (cells T44, T45) residual value of project activity assets was included in the cash inflows in the final year.	OK	OK

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
1.2.2. Is the fair value calculated in accordance with local accounting regulations where available, or international best practice?	EB 62 Ann 5	4	Fair value of the assets is calculated in accordance with the depreciation period established in the local accounting and tax legislation.	OK	OK
1.2.3. Do such fair value calculations include both the book value of the asset and the reasonable expectation of the potential profit or loss on the realization of the assets?	EB 62 Ann 5	4	As clarified by the project participants due to the nature of the assets it is very unlikely that these assets will be sold after the period of the technical lifetime. Gas turbines most likely will be suspended and then uninstalled. Therefore, fair value of the assets was estimated as the book value at the end of the assessment period (2030).	OK	OK
1.3. Non-cash items					
1.3.1. Are depreciation, and other non-cash items related to the project activity, which have been deducted in estimating gross profits on which tax is calculated, added back to net profits for the purpose of calculating the financial indicator (e.g. IRR, NPV)?	EB 62 Ann 5	5	As Projects participants calculated post-tax equity IRR as stated in Sub-Step 2c of the PDD. BVC ensured that depreciation and other non-cash items were included in calculation of the gross profit on which the tax is calculated, but not included in investment cash flows when IRR was calculated.	OK	OK
1.3.2. Is it ensured that taxation will be included as an expense in the IRR/NPV calculation, only in cases where the benchmark or other	EB 62 Ann 5	5	Project participants applied post-tax comparison.	OK	OK



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financial indicator is intended for post-tax comparisons?			BVC ensures that taxation was included in IRR calculation as it is post-tax.		
1.4. Input values validity					
1.4.1. Are input values used in the investment analysis valid and applicable at the time of the investment decision taken by the project participant?	EB 62 Ann 5	6	The use of investment analysis to demonstrate additionality is intended to assess whether or not a reasonable investor would or not decide to proceed with a particular project activity without the benefits of the CDM. This decision will therefore be based on the relevant information available at the time of the investment decision and not information available at an earlier or later point. As according to PDD investment decision was made March 2012. All input values (data and assumptions) are consistent with this timing.	OK	OK
1.4.2. Have the timing of the investment decision and the consistency and appropriateness of the input values with this timing been validated?	EB 62 Ann 5	6	The timing of the investment decision and consistency if the input values with this timing was appropriately validated,	OK	OK
1.4.3. Have the listed input values been consistently applied in all calculations?	EB 62 Ann 5	6	As compared with the reference information regarding the power plant that is planned to be constructed in 2015, all input values are applied consistently.	OK	OK



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1.5. Cease after commencement					
1.5.1. In the case of project activities for which implementation ceases after the commencement and where implementation is recommenced due to consideration of the CDM, does the investment analysis reflect the economic decision-making context at point of the decision to recommence the project? i.e. capital costs incurred prior to the revised project activity start date are reflected as the recoverable value of the assets, which are limited to the potential reuse/resale of tangible assets.	EB 62 Ann 5	7	For this specific project, there is no any cease of implementation and there is no any recommencement of the project. In fact construction of the project does not start yet. Therefore, this item is not applicable.	OK	OK
1.6. Transparency					
1.6.1. Have project participants supplied spreadsheet versions of all investment analysis?	EB 62 Ann 5	8	Yes	OK	OK
1.6.2. Are all formulas used in this analysis readable and are all relevant cells viewable and unprotected?	EB 62 Ann 5	8	Yes	OK	OK
1.6.3. In cases where the project participant does not wish to make such a spreadsheet available to the public, is an exact read-only or PDF copy provided for general publication?	EB 62 Ann 5	8	Exact pdf copy is provided for general publication.	OK	OK
1.6.4. In case the PP wishes to black-out certain elements of the publicly available version, is a	EB 62 Ann 5	8	N/A	OK	OK



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clear justification for this provided to the UNFCCC secretariat by the DOE when requesting registration?					
2. Project IRR and Equity IRR					
2.1. Project IRR					
2.1.1. Is it ensured that the cost of financing expenditures (i.e. loan repayments and interest) is not included in the calculation of project IRR?	EB 62 Ann 5	9	N/A as Projects participants applied equity IRR for the benchmark analysis.	OK	OK
2.2. Equity IRR					
2.2.1. Is it ensured that in the calculation of equity IRR only the portion of investment costs which is financed by equity is considered as the net cash outflow, the portion of the investment costs which is financed by debt is not considered a cash outflow?	EB 62 Ann 5	10	It was ensured that only portion of the investment costs which is financed by equity was considered as the net cash outflow and the portion of investment costs financed by debt is not considered in a cash outflow.	OK	OK
2.3. Actual interest payable					
2.3.1. In cases where a post-tax benchmark is applied, is it ensured that actual interest payable is taken into account in the calculation of income tax?	EB 62 Ann 5	11	BVC ensures that actual interest payable was taken into account in the calculation of income tax as post-tax benchmark was applied by the by the Project Participants.	OK	OK
3. Benchmarks					
3.1. Type of IRR					
3.1.1. In cases where a benchmark approach is	EB 62	12	BVC confirms that the applied benchmark is	OK	OK

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used, is the applied benchmark appropriate to the type of IRR calculated?	Ann 5		appropriate to the type of IRR calculated.		
3.1.2. In cases where benchmarks are supplied by relevant national authorities, if the DOE validates that they are applicable to the project activity and the type of IRR calculation presented?	EB 62 Ann 5	12	N/A as default value provided in The 'Guidelines on the Assessment of investment analysis' was applied.	OK	OK
3.2. Standard in the market or Company-specific					
3.2.1. If the DOE's validation of the benchmark also includes its opinion on whether a company-specific benchmark or a benchmark based on parameters that are standard in the market is suitable in the context of the underlying project activity?	EB 62 Ann 5	13	N/A as default value provided in The 'Guidelines on the Assessment of investment analysis' was applied.	OK	OK
3.2.2. In the cases of projects which could be developed by an entity other than the project participant, is it ensured that the benchmark is based on parameters that are standard in the market?	EB 62 Ann 5	13	The project can be developed only by SJSC "Uzbekenergo" which is as project participant. Therefore, this question is not applicable.	OK	OK
3.2.3. In cases where internal company benchmarks/expected returns (including those used as the expected return on equity in the calculation of a weighted average cost of capital - WACC) are applied:	EB 62 Ann 5	14	N/A as default value provided in The 'Guidelines on the Assessment of investment analysis' was applied.	OK	OK



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3.2.3.1. Is it ensured that there is only one possible project developer?	EB 62 Ann 5	14	It is ensured by BVC that SJSC "Uzbekenergo" is the only possible project developer.	OK	OK
3.2.3.2. Is it demonstrated to have been used for similar projects with similar risks, developed by the same company?	EB 62 Ann 5	14	It was demonstrated and ensure by BVC that similar projects developed by SJSC "Uzbekenergo" (which are currently at the Validation stage) considered the same risks. Namely for the equity IRR the same benchmark provided in the 'Guidelines on the Assessment of investment analysis' was applied	OK	OK
3.2.3.3. Or, if the company is brand new, would have been used for similar projects in the same sector in the country/region?	EB 62 Ann 5	14	N/A as SJSC "Uzbekenergo" is not a brand new company.	OK	OK
3.3. Cost of equity					
3.3.1. If the benchmark is based on parameters that are standard in the market, is it ensured that the cost of equity is determined either by: (a) selecting the values provided in Appendix A; or by (b) calculating the cost of equity using best financial practices, based on data sources which can be clearly validated by the DOE, while properly justifying all underlying factors?	EB 62 Ann 5	15	It is ensured by BVC that value provided in the Appendix A was applied for the cost of the equity.	OK	OK

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3.3.2. If a company internal benchmark is used, the values in the table in Appendix A may also be used, as a simple default option. Does the proposed benchmark adopt this option?	EB 62 Ann 5	15	N/A as company internal benchmark was not used, but default value provided in the Appendix 1 to 'Guidelines on the Assessment of investment analysis'.	OK	OK
3.4. Cost of debt					
3.4.1. If a company's internal benchmark is used for the expected return on equity, is it ensured that the cost of debt is based on the weighted average cost of debt financing of the legal entity owning the CDM project activity?	EB 62 Ann 5	16	N/A as company internal benchmark was not used, but default value provided in the Appendix 1 to 'Guidelines on the Assessment of investment analysis'	OK	OK
3.4.1.1. For loans, is the weighted average cost of outstanding long-term debt used?	EB 62 Ann 5	16	At the moment of decision making no any loan agreements were concluded. To justified loan costs extract from feasibility study was provided. Later in the calculations the value taken from the feasibility study (average of two values) was implied as long-term loans rate.	OK	OK
3.4.1.2. For bonds, is the weighted average yield of the bonds during the last three months prior to the submission of the CDM-PDD for validation or prior to the investment decision, whichever is earlier used?	EB 62 Ann 5	16	N/A as bonds are not issued in the host country of CDM project.	OK	OK
3.4.1.3. In cases where the debt finance structure of the project is not yet	EB 62 Ann 5	16	The debt structure of the project was assumed as according to the feasibility study	OK	OK



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available (e.g. a letter of intent for debt funding is not available), is the cost of debt assumed as the commercial lending rate in the country or the yield of a 10 year bond issued by the government of the host country or, if this is not available, the bond with the maturity which is closest to 10 years?			<p>approved at the state level of Uzbekistan republic as the best available source of information.</p> <p>It may be also noted that no bonds issues by Uzbekistan government are available. Moody's rating of the National bank of Uzbekistan is negative and in non-investment grade, specifically:</p> <ul style="list-style-type: none"> - Long term rating B2, not on watch; - Bank financial strength rating E+, not on watch; - ST issuer level rating NP, not on watch.[§] <p>Therefore, there is no any information on the lending rate in the country for comparable volume of investments, and fence feasibility study is considered as the best available source of information.</p>		
3.4.1.4. Are the followings documented in the CDM-PDD?				OK	OK
3.4.1.4.1 (a) for bonds: the key parameters of the bond including the time of maturity, yield, registration issuance in the	EB 62 Ann 5	16	N/A as bonds are not issued in the host country of CDM project.	OK	OK

[§] <http://www.moody.com/credit-ratings/National-Bank-of-Uzbekistan-credit-rating-806952299###>



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financial system and set-up in the market;					
3.4.1.4.2 (b) for loans from a financial institution: the contract of lending between the financial institution and the legal entity owning the assets of the project activity, or, in absence of the contract, a letter from the bank stating its intention to award the loan and the key terms for the loan;	EB 62 Ann 5	16	Extract from the Feasibility study approved at the Government level of Republic of Uzbekistan was provided in order to demonstrate key terms of the intended loans.	OK	OK
3.4.1.4.3 (c) for debt financing from a parent company: the transfer of capital to the legal entity, documented with the contract of lending between the parent company and the legal entity owning the assets of the project activity and/or the parameters of the corporate bonds as mentioned above. This latter option is only valid for corporate bonds issued in the host country of the CDM project activity.	EB 62 Ann 5	16	N/A as no financing from a parent company is planned to be involved.	OK	OK
3.4.2. If the benchmark is based on parameters that are standard in the market, is it ensured that the cost of debt is calculated as the cost	EB 62 Ann 5	16	N/A as default benchmark provided in the Appendix 1 to 'Guidelines on the Assessment of investment analysis' was	OK	OK



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of financing in the capital markets (e.g. commercial lending rates and guarantees required for the country and the type of project activity concerned), based on documented evidence from financial institutions with regard to the cost of debt financing of comparable projects? In cases where this data is not available, is the commercial lending rate in the host country used to calculate the cost of debt?			applied.		
3.5. Finance structure					
3.5.1. If a company's internal benchmark is used for the expected return on equity, is it ensured that the percentage of debt financing and equity financing reflects the long-term debt/equity finance structure of the legal entity owning the assets of the project activity?	EB 62 Ann 5	17	N/A as company internal benchmark was not used, but default value provided in the Appendix 1 to 'Guidelines on the Assessment of investment analysis'.	OK	OK
3.5.1.1. Is it ensured that the percentage is determined based on the latest balance sheet provided under local fiscal/accounting standards and rules if: (a) the legal entity owning the assets of the project activity has balance sheets audited by a third party within two years prior to the submission of the CDM-PDD for validation; and (b) the accounting books of the legal entity	EB 62 Ann 5	17	N/A as company internal benchmark was not used, but default value provided in the Appendix 1 to 'Guidelines on the Assessment of investment analysis'.	OK	OK



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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
reflect at least the total value of all the assets needed for the project activity.					
3.5.1.2. If the debt/equity finance structure is not yet available, is 50% debt and 50% equity financing assumed as a default?	EB 62 Ann 5	17	N/A. Debt/equity structure was provided In the Project feasibility study approved at the Government level of Republic of Uzbekistan.	OK	OK
3.5.2. If the benchmark is based on parameters that are standard in the market, is it ensured that the typical debt/equity finance structure observed in the sector of the country is used? If such information is not readily available, is 50% debt and 50% equity financing assumed as a default?	EB 62 Ann 5	18	N/A As equity benchmark was applied. When calculating equity benchmark (compared to the project benchmark) it does not include debt/equity finance structure of the project.	OK	OK
4. Investment comparison analysis and benchmark analysis					
4.1.1. If the proposed baseline scenario leaves the project participant no other choice than to make an investment to supply the same (or substitute) products or services, is it ensured that an investment comparison analysis is used?	EB 62 Ann 5	19	In cases where the alternative requires investment anyhow and baseline emissions are based on that alternative, the only means of determining that the project activity is less financially attractive than at least one alternative is to conduct an investment comparison analysis. It was demonstrated in PDD Section B.4. that different investment scenarios were compared and the most financially attractive were chosen as the baseline scenario.	OK	OK

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CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
4.1.2. If the alternative to the project activity is the supply of electricity from a grid, is it ensured that a benchmark approach is used?	EB 62 Ann 5	19	N/A. Justification is provided in Section B.4. of the PDD	OK	OK
5. Sensitivity analysis					
5.1. Variables					
5.1.1. Are variables, including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues subjected to reasonable variation (all parameters varied need not necessarily be subjected to both negative and positive variations of the same magnitude)?	EB 62 Ann 5	20	All variables which constitutes more than 20% of either total project costs or total project revenues were subject to the sensibility analysis as described in the attached spreadsheet. Summary of the analysis is also presented in the Section B.5 of PDD.	OK	OK
5.1.2. Are the results of this variation presented in the PDD and reproducible in the associated spreadsheets?	EB 62 Ann 5	20	Results of the variation were presented in Excel spreadsheets format to DOE as confidential. Also pdf copies was presented for the public publication.	OK	OK
5.1.3. Where a DOE considers that a variable which constitute less than 20% has a material impact on the analysis, if a corrective action request to include this variable in the sensitivity analysis has been raised?	EB 62 Ann 5	20	N/A as there is no variables less than 20% that has a material impact on the analysis.	OK	OK
5.2. Variation range					
5.2.1. Has the DOE assessed in detail whether the range of variations is reasonable in the project context?	EB 62 Ann 5	21	The sensitivity analysis covers a range of +10% and -10%. BVC confirms that it is deemed appropriate in the context of the	OK	OK



CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			project.		
5.2.2. In cases where a scenario will result in the project activity passing the benchmark or becoming the most financially attractive alternative, has the DOE provided an assessment of the probability of the occurrence of this scenario?	EB 62 Ann 5	21	N/A as the best scenario generates IRR (without CDM related income) that is lower than the benchmark provided in the "Guidance on the assessment of investment analysis" version 05 and applied by the PPs.	OK	OK

Table 5 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
CAR 01. As far as the project under consideration is not "greenfield" project, the PPs should describe situation existing at the site where the project is to be implemented.	A.1.2.	<p><u>Response #1:</u> The project envisages construction of two new Combined Cycle Gas Turbine Power Plants (CCGT) in the boundary of the existing Talimarjan thermal power station (TTPS) in Kashkadarya region of the Republic of Uzbekistan (new turbines power plants will be constructed close to the existing capacities of the power plant. According to CDM terms (please see AM0087, page 1) New power plant is determined as: "a newly constructed power plant with <u>no operational history</u>". Also it is stated that Power plant should defined as per the "Tool to calculate the emission factor</p>	<p><u>Conclusion on Response #1:</u> The explanation is exhaustive and satisfactory. Still, according to the requirements of the Guidelines for completing the PDD form (Version 01.0), the PPs are to describe the situation at site existing prior to the project implementation. Please amend PDD Section A.1. with this information.</p>



		<p>for an electricity system”.</p> <p>In the mentioned tool a Power plan is defined as follows.</p> <p>Power plant/unit. A power plant/unit is a facility that generates electric power. Several power units at one site comprise one power plant, whereas a power unit is characterized by the fact that it can operate independently from other power units at the same site. Where several identical power units (i.e. with the same capacity, age and efficiency) are installed at one site, they may be considered as one single power unit. Accordingly there is requirement that New power plan should be greenfeild, but requirement to have no operational history and generates electricity independently from other power units.</p> <p>In the case of Talimarjan project:</p> <ul style="list-style-type: none"> • 2 new turbines which will be constructed will have no operational history; • 2 new turbines can be considered as plant according to the power plan definition. “several power units at one site comprise power plan”; • New turbines will generate electricity from the exiting power units. <p>Thus although project is not a greenfield, but existing site of Talimarjan thermal power station, new construction is considered to be a New power plant. Details of existing site are also described in FSR which is attached to the documents package.</p>	<p><u>Conclusion on Response #2</u></p> <p>Based on the additional information added to the PDD the issue is closed.</p>
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		<p><u>Response #2:</u></p> <p>Details of the situation at the site existing prior to the project implementation were added into the PDD Section A.1.</p> <p>In particular:</p> <p>“At the site of existing Talimarjan TPS four generation units are currently located with the total capacity of 3200MW and station provided electricity to the South regions of Uzbekistan republic. The latest power unit was launched in 2004 and constructed with the use of rankine-cycle technology. As described below new power units to be constructed in the framework of the project will be closed to existing ones and will be located within the territory of Talimarjan TPS. But they will be built on the vacant space and all required buildings and supportive infrastructure will be newly constructed. See details in in the Section A.3.”</p> <p>Please see Section A. 2, Scenario existing prior to the start of the implementation of the project activity, PDD Version 4.5 dated 07/11/2013.</p>	
<p>CL 01. It is stated in the PDD Section A.1. that the project implementation will lead to the reduction of pollutants emission into atmosphere in 4.5 times. Please make it clear in the PDD where this figure comes from</p>	A.1.5.	<p>PDD was amended as follows:</p> <p>“Reduction of pollutants emission into atmosphere and water disposal to Karshinskiy water channel”</p> <p>Please see PDD Version 4.5 dated 07/11/2013.</p> <p>In general the volume of pollutants emissions into the atmosphere are estimated in the EIA report but volume of differs for each pollutant.</p>	<p>CL 01 is closed based on the proper corrections made to the PDD.</p>



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		Therefore to avoid inaccuracy this number (4.5 times) was excluded from PDD text.	
CAR 02. Please provide in Section A.1. the estimate of annual average and total GHG emission reductions for the chosen crediting period	A.1.4.	PDD Section A.1 was amended with estimate of annual average and total GHG emission reductions for the chosen crediting period. Please see PDD Version 4.5 dated 07/11/2013	PDD was amended with the requested information to meet the requirements of the Guidelines for completing the PDD form (Version 01.0). CAR 02 is closed.
CAR 03. All information provided in the PDD is to be in English only. Please make due correction to Figure 2.	A.2.4.	Figure 2 in the PDD was corrected. Please see PDD Version 4.5 dated 07/11/2013	CAR 03 is closed based on due corrections made to the PDD.
CL 02. It is stated in the PDD Section A.3. that "scenario prior the start of the implementation is mostly gas generation but with lower efficiency factor". Please specify what gas is meant.	A.3.1.	PDD was amended, see reply to the CAR 06.	CL 02 is closed based on the clarification provided.
CAR 04. The description of the physical /geographical location of the project activity shall not exceed one page. Please correct this.	A.3.1.	PDD Section A2 "Location of the project activity" was amended accordingly. Please see PDD Version 4.5 dated 07/11/2013	PDD Section A.2 was corrected to meet the requirements of Guidelines for completing the Project Design Document Form (Version 01.0). CAR 04 is closed.
CAR 05. Please describe technologies and measures to be employed and/or implemented by the project activity in accordance with the requirements of Guidelines for completing the Project Design Document Form (Version 01.0)	A.3.1.	PDD Section A.3 was amended in order to meet requirement of Guidelines for completing the Project Design Document Form (Version 01.0). In particular PDD was amended with the following text: "Apart of turbines and generation equipment project will included construction/installation of the following	PDD Section A.3 was amended as required. CAR 05 is closed.



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		buildings/equipment: 1. The main building, including: - Engine shop; - Deaerator shop; - Boiler room; 2. Gas compressor station; 3. Station of gas preparation; 4. Oil warehouse; 5. Electrical facilities, including power converter and all supporting equipment; 6. Hydrotechnic equipment including: - Pumping station; - Water tubes and drainage; - Other supporting equipment."	
CAR 06. Please clearly describe how the same types and levels of services provided by the project activity would have been provided in the baseline scenario	A.3.4.	PDD was amended with the following text: "In the baseline scenario the same amount of the electric power will be supplied to Uzbekistan energy system by combination of existing thermal power stations and new constructed power stations (50% operating margin, 50% build margin), see more details in the Annex 4." Please see PDD Version 4.5 dated 07/11/2013	CAR 06 is closed based on the explanation provided in the PDD.
CAR 07. Please list the facilities, systems and equipment in operation under the existing scenario prior to the implementation of the project activity	A.3.5.	<u>Response#1:</u> PDD was amended with the following text: "In the scenario prior the start of the implementation the same amount of the electric power will be supplied to Uzbekistan energy system by existing thermal power stations. See Annex 4 for more details. Renewable energy generation cannot provide the same level of	<u>Conclusion on Response #1:</u> CAR 07 is not closed as the requirements of the Guidelines for completing the Project Design Document Form (Version 01.0) Section A.3. paragraph (a) "Provide a



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		<p>services as they cannot provide the same capacity or cannot provide electricity in the peak mode. More details are provided in the Section B4.”</p> <p>Please see PDD Version 4.5 dated 07/11/2013</p> <p><u>Response#2:</u></p> <p>Section A.3 of PDD was amended with the list of facilities, systems and equipment in operation under the existing scenario prior to the implementation of the project activity.</p> <p>In particular:</p> <p>Specifically on the site of Talimarjan TPS the following equipment exists prior to the implementation of the project activity:</p> <ul style="list-style-type: none"> - four generation units with the total capacity of 3200MW; - necessary pumping equipment (water pumps, oil pumps etc.); - ventilation equipment; - and also heating boiler with all supporting equipment to heat the building of the station. <p>New two Combined Cycle Gas Turbines will be constructed in the boundaries of existing Talimarjan TPS but on the spare area close to existing units. All required buildings and supportive infrastructure (as listed above) will be newly constructed.</p> <p>Please see Section A.3 PDD Version 4.5 dated 07/11/2013</p>	<p>list of facilities, systems and equipment in operation under the existing scenario prior to the implementation of the project activity” are not met.</p> <p><u>Conclusion on Response #2</u></p> <p>CAR 07 is closed based on the required amendments made to the PDD.</p>
CAR 08. Please list the facilities, systems	A.3.6.	<u>Response#1:</u>	<u>Conclusion on Response #1:</u>



and equipment in the baseline scenario		<p>Details of the system which would be supplying electric power under baseline scenario are provided in the annex 4.</p> <p><u>Response#2:</u> Section A.3 of PDD was amended accordingly. Please see reply to the CAR 07.</p>	<p>CAR 08 is not closed as the requirements of the Guidelines for completing the Project Design Document Form (Version 01.0) Section A.3. paragraph (b) "Provide a list of facilities, systems and equipment in the baseline scenario" are not met.</p> <p><u>Conclusion on Response #2:</u> Due amendments have been made to Section A.3. CAR 08 is closed.</p>
CAR 09. Please describe how technologies and measures and know-how to be used are transferred to the Host Party	A.3.7.	<p>PDD was amended with details on how technologies and measures and know-how to be used are transferred to the Host Party.</p> <p>This will be done both by applying state-of-the-art equipment from one of the leading manufacturer and by attracting foreign technical consultants who will perform assembling and installation of the equipment.</p>	<p>The PDD was amended with the relevant information. CAR 09 is closed.</p>
CAR 10. Volumes, as well as measurement units concerning natural gas reserves presented in Section B.2. (Table 2) and Section B.4. (Alternative D) are not consistent. Please bring them in line.	B.2.1.	<p>PDD was amended accordingly to have consistent numbers and volume units.</p> <p>Please see PDD Version 4.5 dated 07/11/2013</p>	<p>The measurement units were unified, the volumes changed respectively. CAR 10 is closed.</p>
CL 03. Please include in the justification of methodology applicability the definition of a new plant.	B.2.2.	<p>PDD was amended accordingly (justification of methodology applicability is provided in reply to the CAR 01).</p>	<p>The PDD was amended with the definition of a new power plant taken from the</p>



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		Please see PDD Version 4.5 dated 07/11/2013	recognized sources such as approved CDM methodology AM0087 as well as “Tool to calculate the emission factor for an electricity system” to make sure the project under consideration does not contradict the applicability criteria of the methodology used by the PPs. CL 03 is closed.
CAR 11. Greenhouse gases and their emission sources are not identified and clearly presented on Figure 5 The origin as well as appropriateness of their inclusion to the project boundary diagram is highly doubtful.	B.3.2.	Figure 5 was amended in order to present equipment, systems, flows of mass and energy as well as emission sources and data to be monitored. Please see PDD Version 4.5 dated 07/11/2013	Figure 5 was upgraded by the PPs to clearly and vividly demonstrate present equipment, systems, flows of mass and energy as well as emission sources and data to be monitored. Issue is closed.
CAR 12. The emission sources and GHGs included in the project boundary and the data parameters to be monitored indicated in the diagram are not vividly presented. Please identify and clearly present greenhouse gases and their emission sources in Figure 5.	B.3.3.	Figure 5 was amended accordingly. Please see PDD Version 4.5 dated 07/11/2013	CAR 12 is closed. Refer to conclusion on CAR 11.
CAR 13. Summary sensitivity analysis is demonstrated in Table 7. Please correct the mistake on page 12. of the PDD.	B.4.5.	PDD was amended accordingly. Please see PDD Version 4.5 dated 07/11/2013	The mistake was corrected. Issue is closed.
CAR 14. Key characteristics of thermal	B.4.5.	PDD was amended accordingly.	The mistake was corrected.



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power stations in Uzbekistan and a ration of fuel consumption (2010) are provided in Table 11, not 13 as it is stated in sub-step a. Please correct the numbering of tables		Please see PDD Version 4.5 dated 07/11/2013	Issue is closed.
CL 04. It is said in the Sector analysis conducted for Talimarjan Power Project by Asian Development Bank that “since 1991...two power capacity expansion projects have been completed, which are (i) the rehabilitation of two 300 MW steam cycle units at the Syrdarya TPP, and (ii) the construction of one 800 MW steam cycle unit at the Talimarjan TPP. Please explain why a steam cycle technology isn't considered among the alternative baseline scenarios?	B.4.9.	<p>Steam cycle technology is the same name for Combined heat power plant which was considered among alternatives of the baseline scenario. Another name is also Rankine cycle technology please see: http://en.wikipedia.org/wiki/Steam_engine#Steam_cycle</p> <p>Please see PDD, Section B.4, Scenario B where it is stated that: “Thermal power plants represent 86% and 94% of power from those thermal power plants is generated from natural gas based <u>rankine-cycle technology</u>.”</p> <p>To double check this please see Annex 4, where Talimarjan TPP listed as recently constructed power plant (2004 is the year of operation start).</p>	CL 04 is closed based on the exhaustive clarification provided by the PPs.
CAR 15. The amount of available installed capacity for power generation presented in Section B.4. (Alternative B.) differs from the one in Section A.1. Please make them consistent.	B.4.10.	<p>PDD was amended accordingly.</p> <p>Please see PDD Version 4.5 dated 07/11/2013</p>	<p>The figures presented in Section B.4. and Section A.1. were brought in line.</p> <p>CAR 15 is closed.</p>
CAR 16. Please provide the origin/source of figures presented in Table 5 more specifically.	B.4.10.	<p><u>Response #1:</u> As it was added in the Section A.3 At the moment of PDD development it there were no final decision regarding the manufacture of equipment to be installed in the framework of the project. Therefore there is a</p>	<p><u>Conclusion on Response #1:</u> Please provide for verification the documentary evidences of the estimations made by</p>



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		<p>range for each performance due to final technical solution which will be implemented on site and these numbers are expected estimations.</p> <p>When we consider plausible alternative scenarios the values are more uncertain and are approximate expert estimation.</p> <p>At the moment of PDD development Uzbekenergo was requested to provide these estimations both for the project activity and alternative scenarios (were provided in form of the letter). Further these Uzbekenergo expert estimations were used in PDD calculation.</p> <p><u>Response #2:</u></p> <p>Please find attached the letter form Uzbekenergo with the estimations which were applied for the CER estimation and financial analysis calculation.</p>	<p>Uzbekenergo.</p> <p><u>Conclusion on Response #2</u></p> <p>CAR 16 is closed based on the documented evidence presented for validation.</p>
CAR 17. Please provide a description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed project activity	B.4.11.	<p>As described in the Annex 4 of PDD baseline scenario is considered as combination of the existing electric power capacities and new constructed power stations (50% operating margin, 50% build margin).</p> <p>This mean that in the absence of the project activity the same volume of electric power will be supplied by either combined heat power plant or by thermal power plant,</p> <p>In term of technology most likely it would be Open Cycle Gas Turbine generation (as investigated in the Section B.4) as it provides the best combination of low cost of construction and efficiency of generation.</p>	CAR 17 is closed based on the explanation provided.
CAR 18. There is no the PPs' conclusion that all 3 steps of the additionality analysis prescribed by the methodology AM0029 are satisfied and thus, the project activity	B.5.2.	<p>PDD was amended accordingly.</p> <p>Please see PDD Version 4.5 dated 07/11/2013</p>	CAR 18 is closed based on the required amendments made to the PDD.

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demonstrated is additional.			
<p>CAR19. Benchmark analysis is the proper method of investment analysis for the present project.</p> <p>Unfortunately the benchmark used for calculations is not exact. Please note that as per Guidelines for the Assessment of Investment analysis article 12 "Local commercial lending rates or weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR". The developer is using default values for cost of equity without accounting for cost of debt. The cost of debt shall be based on average loan rates in the country. In addition, please take attention that when calculating cost of debt it shall be adjusted for inflation in order to obtain cost of debt in real terms to be compatible with default cost of equity which in turn is indicated in real terms too. Guidelines on the assessment of investment analysis page 8 recommends using long term inflation forecasts issued by IMF. The forecast published in IMF World Economic Outlook annually</p> <p>Having calculated the cost of debt you may now calculate WACC in real terms as per article 18 of the Guidelines and employ the result as your benchmark value.</p>	B.5.4.4.1.	<p><u>Response #1:</u></p> <p>As according to the 'Guidelines for the Assessment of Investment analysis' project participant decided to apply equity IRR for the benchmark analysis.</p> <p>Details of expected terms of the loan financing are provided in Excel file with investment analysis and are as follows:</p> <ul style="list-style-type: none"> - Loan rate 6% (average between Uzbekistan Fund of Reconstruction and Development and ADB as were stated in the preliminary FSR) - Payback period – 15 years. - Grace period – 3 year. <p>Please find attached attract from FSR with these data.</p> <p>Please also note that as volume of required investment is quite significant for Uzbekistan it is available only at limited institutions. Therefore the most likely source of financing is considered as Uzbekistan Fund of Reconstruction and Development (please see http://ufrd.uz/) or international finance organisations.</p> <p>Accordingly equity financing rate was assumed as 13.25% as per 'Guidelines for the Assessment of Investment analysis', page 12.</p> <p>For the purpose of LCOE calculation discount rate was taken as $(13.25\%+6\%)/2 = 9.625\%$, following the approach of 'Guidelines for the Assessment of Investment analysis'</p> <p>"If the debt/equity finance structure is not yet, 50% debt</p>	<p>Please note that mistake has been made when calculating LCOE for scenario 1. Please refer to corrected financial model.</p> <p>All other issues are OK.</p> <p><u>Final conclusion:</u></p> <p>CAR 19 is closed.</p>



		<p>financing and 50% equity financing may be assumed as a default.”</p> <p>Please also note that by omission in the previous Excel file with investment analysis calculation volume of investments were provided without loan financing and were revised accordingly.</p> <p>Please see amended Investment analysis calculation and amended PDD Version 4.5 dated 07/11/2013</p> <p><u>Response #2:</u></p> <p>The mistake was corrected and the whole model was double-checked for possible mistakes and omissions. Please see amended Investment analysis calculation and also letter from Uzbekenergo to justify applied data.</p> <p>PDD was also amended based on the results of the amended calculation. Please see Section B.4, Step 2 of PDD Version 4.5 dated 07/11/2013</p>	
<p>CL 05. Please provide the source (preferably publicly available) of the all basic financial inputs employed including: electricity tariffs, price of natural gas, investment costs, water costs, property and other tax rates</p>	B.5.4.4.2.	<p><u>Response #1:</u></p> <p>The following documents are provided in the document package to justify values in the investment calculation:</p> <ul style="list-style-type: none"> - Feasibility study - ADB estimation on the own consumption, technical losses and commercial losses - ADB projection on the electricity tariffs - Loan rates and expected loan term for the project financing - USD exchange rate - Natural gas tariffs (source – Uztransgas site) 	<p>Please provide some details how the cost of water has been calculated.</p> <p><u>Final conclusion:</u></p> <p>CL 05 is closed based on the letter from Uzbekenergo with initial data which were used for Investment analysis calculation submitted for validation.</p>



		<ul style="list-style-type: none"> - Presidential Degree # PP-1024 from 29.12.2008 - Tax code of Uzbekistan republic <p>As no final technical solution is decided yet, other data is Uzbekenergo expert estimations. Please see amended investment calculation. <u>Response #2:</u> Water costs were taken from the reference information provided by Uzbekenergo which is an estimation but the most accurate up to the date. Please find attached letter from Uzbekenergo with initial data which were used for Investment analysis calculation.</p>	
CAR 20. Please provide us with the financial model Excel file with cells unprotected in order we could check the calculations properly.	B.5.4.4.4.	Unprotected copy of Excel is provided in the package	The issue is closed
CL 06. Please confirm whether investment and operational costs, tariffs and prices indicated with VAT included or not. Please note that the general approach is to make calculations using all input values (investment costs, tariffs and prices) with VAT excluded.	B.5.4.4.4.	All calculations are VAT excluded. Please see investment analysis calculation.	The issue is closed
CL 07. Please make it clear whether the FSR has been the basis of the decision to proceed with the investment in the project	B.5.4.7.1.	Please find attached FSR in the documents package to the replies. Please note that FSR was developed in 2009-2010 and have preliminary estimation. Therefore for project decision making Uzbekenergo estimation provided in	FSR was submitted for verification. The issue is closed.



		the Dec 2011 were applied.	
CL 08. If available, please, provide FSR for the project	B.5.4.7.2.	Please find attached FSR in the documents package to the replies.	FSR was submitted for verification. The issue is closed.
CL 09. Please provide explanation whether there are essential distinctions between the proposed CDM project activity and the other similar activities	B.5.6.5.	Distinctions between the project activity and similar activities is that Combined Cycle Gas Turbine technology is more efficient but more expensive than some of the other scenarios (Open Cycle Gas Turbine technology) and therefore would not be implemented under the baseline scenario because of its high costs.	CL 09 is closed.
CAR 21. Default emission factors for fugitive CH ₄ upstream emissions are presented in Table14. Please correct the mistake on page 18 of the PDD.	B.6.1.1.	PDD was amended accordingly. Please see PDD Version 4.5 dated 07/11/2013	CAR 21 is closed.
CAR 22. There is an excessive and at times needless citation of the Methodology AM0029 provisions used by the PPs in description of ERs estimation. Please make them more project specific	B.6.1.1.	PDD was amended accordingly. Please see PDD Version 4.5 dated 07/11/2013	CAR 22 is closed based on the corrections made to the PDD.
CAR 23. In tables of parameters fixed ex ante in Section B.6., please, indicate the "purpose of data" as required by the Guidelines for completing the PDD form. Formulas the references are made to are to be numbered or identified in any other way.	B.6.2.1.	PDD was amended accordingly. Please see PDD Version 4.5 dated 07/11/2013	Due amendments were made to the PDD. The issue is closed.
CAR 24. In tables of parameters to be monitored in Section B.7.1., please,	B.6.3.1.	PDD was amended accordingly. Please see PDD Version 4.5 dated 07/11/2013	Due amendments were made to the PDD.



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indicate the “purpose of data” as required by the Guidelines for completing the PDD form. Formulas the references are made to are to be numbered or identified in any other way.			The issue is closed.
CAR 25. It is said in Table 1 that load factor for CCGT performance is taken at 85%. As it presently can’t be documentary evidenced, please, make it vivid in the PDD that at the time of validation this value is taken as an esteemed one.	B.6.3.2.	PDD was amended accordingly. Please see PDD Version 4.5 dated 07/11/2013	CAR. 25 is closed based on the due amendments made to the PDD.
CL 10. Please explain the source of data for the ratio 3.6. If it is a default value used in calculations, it must be included in the table of parameters fixed ex ante.	B.6.3.4.	It is a conversion factor from MWh to GJ as notes in the comments. It is a standard (constant) conversion factor please see http://en.wikipedia.org/wiki/Conversion_of_units Table of the parameters fixed ex ante was revised accordingly.	CL 10 is closed.
CL 11. Please explain the source of data for the value 0,574 (generation efficiency) used in calculations.	B.6.3.4.	This value was provided by Uzbekenergo and is preliminary expert estimation based on FSR. Please see FSR, page 42.	The information was checked by the validation team and found relevant. CL 11 is closed.
CL 12. Please provide in the respective PDD section specific information on how the data and parameters that need to be monitored such as annual quantity of natural gas consumed in the project activity, its calorific value would actually be collected during monitoring included	B.7.1.1.	All information will be provided by Uzbekenergo on the monthly basis. Volume of natural gas consumed will be provided on the basis of gas meters indication and cross-checked with accounting data. Net calorific value will be provided by Uzbekenergo in the forms of the certificate with natural gas laboratory	CL12 is closed based on exhaustive explanation provided by the PPs.



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		test (to be provided by the gas supplier). In case if this documentation will not be available than default vales will be applied. Please see PDD Version 4.5 dated 07/11/2013, Section B.7.	
CAR 26. Please make it clear in the PDD Section B.7.1 what source of data was used for establishing NCV_{NG} value presented for this parameter	B.7.1.2.1.	It is NCV of the gas which is currently supplied to Talimarjan TTP. It is also mentioned in FSR, please see page 51.	CAR 26 is closed.
CL 12. Please provide documentary evidence for the value of annual quantity of NG consumed in the project activity presented in Table B.7.1.of the PDD.	B.7.1.2.1.	As the plant is not operated yet, it not possible to provide any documentary evidence for this value as currently no gas is purchased and consumed. As described in PDD and CER calculation this value is an expert estimation and calculated on the basis of the following values: <ul style="list-style-type: none"> - Expected volume of energy generation - Estimated efficiency of enery generation Actual volume of gas consumption will be monitored as described in the monitoring plan.	CL12 is closed.
CL 13. For parameters 3 and 4 in table B.7.1 please provide a source of data more specifically by indicating the volume, table page, etc	B.7.1.2.1.	PDD was amended accordingly. Please see PDD Version 4.5 dated 07/11/2013	The respective tables of parameters were amended. CL 13 is closed.
CAR 27. Where data or parameters are to be measured, please, specify the measurement methods and procedures, standards to be applied, accuracy of the measurements, person/entity responsible for the measurements, and, in case of	B.7.1.2.3.	PDD, Section B.7.1 was amended accordingly. Please see PDD Version 4.5 dated 07/11/2013	CAR 27 is closed.



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periodic measurements, the measurement intervals			
<p>CAR 28. The memorandum of understanding between “Uzbekene”go” and Synecta (Framework Agreement) submitted by the PPs for validation, was signed on 25/06/2012. Please, correct this date in the respective PDD sections.</p>	C.1.1.2.	<p>PDD was amended accordingly. Please see PDD Version 4.5 dated 07/11/2013</p>	<p>CAR 28 is closed based on the corrections made to the PDD.</p> <p>Upon request for review the project start date was changed to 07/03/2013 according presented “EPC Contract Agreement (Contract No.: SJSC/UzbekEnergo/ICB-2010-001)” between Talimarjan TPP Unitary Enterprise of SJSC UzbekEnergo and Hyundai Engineering & Construction and Daewoo International Consortium concerning Talimarjan Thermal Power Plant Expansion Project – Construction of two Combined Cycle Power Plant (Gross 929 MW) of 07.03.2013 (Refer to document No.69 in the list of Category 2 Documents in Section References of the present Validation report).</p>



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CAR 29. Please specify the last date of the crediting period to assure the credited period indicated doesn't exceed 10 years. Otherwise the length of the crediting period may be taken as 11 years.	C.2.3.1.	PDD was amended accordingly. Please see PDD Version 4.5 dated 07/11/2013	The according amendments have been made. CAR 29 is closed.
CAR 30. The reference 26 made to the permissions needed is incorrect. Please correct it.	D.2.1.	PDD was amended accordingly. Please see PDD Version 4.5 dated 07/11/2013	The reference is valid. Issue is closed.
CAR 31. Please make it clear in the PDD whether an analysis of transboundary impacts has been undertaken and whether those impacts are considered significant by the project participants or the host Party.	D.2.2.	PDD was amended: "In the framework of EIA it was considered that project has no significant transboundary effects; all concentrations occur within the site boundary (please see page 34 of EIA)." Please see PDD Version 4.5 dated 07/11/2013 and EIA report.	CAR 31 is closed based on the amendments made to the PDD.
CAR 32. The language of the PDD is English. Please provide a summary of the advertisements presented in Section E.1. translated into English	E.1.1.	PDD was amended accordingly. Please see PDD Version 4.5 dated 07/11/2013	The translation has been made. CAR 32 is closed.
CAR 33. Please provide MoC statement as required	C.1.1 Appendices	Scan of the signed MoC was provided to DOE.	MoC has been submitted. The issue is closed.
CL 14. Interest payment rates seem to be underestimated. Please check them and make appropriate corrections.	B.5.4.7.3.	The required corrections were made to the PDD Version 4.5 dated 07/11/2013.	Issue is closed based on the corrections made to the PDD.
CL 15. The electricity cost presented is 0,037 USD/KWh VAT included; same value is used in calculations. At the same time calculations made in the previous PDD versions, do not include VAT. Please	B.5.4.7.3.	The Excel calculation file was corrected. Electricity cost is VAT excluded.	The required correction was made to the PDD. CL 15 is closed.



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make it clear			
CAR 34. Neither Sec.1 nor sec.A.3 of the PDD provide certain and unequivocal information on the total capacity of the CCGT units to be installed in course of the project activity. The indicated figures are “between 740 and 900 MW”. Then in sec. B2 the total rated capacity is indicated as 820 MW. The Feasibility study report provides the figure of 450 MW for each of two CCGT units. Please, indicate in the PDD and provide reliable documentary evidence for the total installed capacity of the CCGT units to be installed at Talimarjan.	B.5.4.1	<p>At the moment of decision making final technical solution for the project was not clear. Although the title of the project was construction of 2 unit of 450 MW capacity (900 MW in total) inside the project documentation is was stated that total capacity of the units will be between 740 MW and 900 MW. This statement was included in the feasibility study as well as in ADB report.</p> <p>Therefore, in order to be conservative for the purpose of the project calculations moderate 820 MW estimation (medium between 740 MW and 900 MW) was assumed regardless of the fact that project always tend to have 900 MW of total capacity.</p> <p>KZ: Please update the PDD.</p> <p>FS: PDD was updated.</p>	Issue is closed.
CAR 35. Please, indicate the entitlement and the status of the extract “financial analysis” in the file: “02 - ADB - Own consumption, technical losses, commercial losses.jpg” that supports the figures of Technical losses, (13.0%) and Commercial losses, (7.0%). Please provide the copy of title or coverpage of this document to confirm its validity.	B.5.4.4.1.	The title of the document is ‘Financial analysis (Talimarjan Power Project)’ which is an integral part of ADB report (file name 43151-02-uzb-fa). The copy of the title and cover page is attached to the current reply.	Issue is closed.
CAR 36. The value of annual electricity supply provided by ADB at file: “03 - ADB - Electricity tariffs” differs from that used in the investment analysis. In this view please, clarify the applicability of this	B.5.4.4.1.	The value of the electricity supply in financial calculation are estimated as follows: Total capacity (MW) * Capacity load (%) * 8760 hours * (1 – Internal electricity consumption – Technical losses – Commercial losses)	Please add references to the sources of the values with the explanation.



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document and all other financial metrics.		<p>Total capacity and capacity load were taken from the data provided by Uzbekenergo. Internal electricity consumption, Technical losses and Commercial losses were taken from ADB report</p> <p>As assumptions taken by ADB in the calculation table were not transparent and calculated values did not deviate much from 'Annual Electricity Supply' values from the table, calculated values were considered as the most consistent (with all other assumptions of the model).</p>	
<p>CAR 37. Total Costs of project provided in the ADB report [file: 43151-023-uzb-pam-updated] is 1280.00 mln USD that does not match with figures used in the investment analysis.</p>	B.5.4.4.1.	<p>According to the ADB report [file: 43151-023-uzb-pam-updated, page 12] Total project costs includes the following items which are either non-cash costs or are already estimated in the cash flow model:</p> <ul style="list-style-type: none"> - Taxes and Duties – \$ 230 mln. As according to ADB report these costs shall be covered Uzbekistan government which means that Uzbekistan government will provide tax allowances and these amount will not be paid by project developer or any other party. - Contingencies - \$ 96,44 mln. These amounts do not refer to any contract or any works under the project and reflect some uncertainty about the future costs. - Interests and charges – \$ 42,94 mln. These amounts are already accounted in the cash flow calculations (in year-by-year slit of the cash flows) 	Issue is closed.



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		<p>- Please also note that total project costs should also include investments in the working capital, and this item is also accounted separately in cash flow calculations (although this value is not separated, logically this value should be deducted from the project costs to derive to investments in equipment and construction works).</p> <p>If these amounts will be deducted, the estimation of investments will be very close to the data provided by Uzbekenergo.</p> <p>Please also note that the date of the document (provided on the title page) is June 2012 while investment decision for the project as made in March 2012. Therefore, in order to be consistent with other assumptions and according to 'Guidelines on the assessment of investment analysis' paragraph 6 the data provided by Uzbekenergo was applied for financial model calculation as the most consistent.</p>	
CAR 38. Please, provide the objective documentary evidence to confirm the following metrics using in the investment analysis: Maintenance and management costs, Water costs Capital repair,	B.5.4.4.1.	These values were provided by Uznekenergo as estimation of the project related costs at the moment of investment decision making. Please find attached letter from Uzbekenergo #5741 from 26 November 2012.	Issue is closed.
CAR 39. Please, provide the objective evidence to support the following assumptions used for levelized costs calculation for the alternatives other than the project: Investment costs,	B.5.4.4.1.	As alternative scenarios are hypothetical by their nature they were not calculated as detailed as the project activity and obviously have more uncertainty compared to the project values. At the moment of decision making (as per paragraph 6 of Guidelines on the assessment of	Issue is closed.



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<p>Implementation period, Maintenance and management costs, Operation hours. Please, explain the costs distribution for each alternative per years of construction. In order to support the investment values, please, use the publicly available sources or comparable cases as the reference to information provided just in one letter from the project operator cannot be considered objective.</p>		<p>investment analysis') information from Uzbekenergo was the only available source to compare these hypothetical scenarios. There are no public information on the similar project in Uzbekistan. And we consider that it is not correct to compare alternatives with data from another countries as the data will not be comparable due to Uzbekistan country specific. Therefore, we cannot provide more detailed information of the alternative indicator rather than letter from Uzbekenergo (#5741 from 26 November 2012).</p> <p>On the other hand, we have the data from the local DNA about the recently build and connected to the local grid capacities. Please see file 'CO2 Emission Factor Calculation for the Uzbekistan National Grid (2010), Version 2 February 7, 2012, Section 3 'Calculation of the Build Margin Emission Factor' (this document was available at the moment of decision making). In these data we do not see any investment costs, but we can see that most recently constructed capacities (after 1991) are gas generation and small hydrogenation plant. No coal generation was recently built.</p> <p>In addition, if we consider the whole national system, thermal power plants represent 86% of total capacity and 94% of power from those thermal power plants is generated from natural gas based rankine-cycle technology** which is considered as the baseline scenario after financial analysis.</p>	
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** Uzbekenergo website. Technical and economic indicators.

<http://www.uzbekenergo.uz/en/activities/technical-and-economic-indicators/>



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		All these confirm from 'non-financial side' that the project activity is the most reasonable and attractive option compared to the other alternatives.	
CAR 40. The electricity output in the alternatives selected for the investment analysis is different from the project hence these alternatives are incomparable. Please justify.	B.5.4.4.1.	<p>Electricity output for the project activity as well as for each alternative was calculated as follows:</p> <p>Total capacity (MW) * Capacity load (%) * 8760 hours * (1 – Internal electricity consumption – Technical losses – Commercial losses)</p> <p>As different alternatives have different values of internal consumption the electricity output is different for them (there is a slight deviation). But total capacity is equal and other assumptions are consistent for each of the alternatives.</p>	Issue is closed.



9. APPENDIX B: COMMENTS RECEIVED DURING GLOBAL STAKEHOLDER CONSULTATION PROCESS

SC01	Comment submitted by M.Brutus	In India there is huge shortage of Natural Gas especially the irregular and interrupted supply of the Gas. At the same time the project proposed to use Natural gas which would further aggravated the problem. In that case the present user of the natural gas would be forced to switch to the alternative such as fossil fuel and ultimately the GHG would be released.
SJSC “Uzbekenergo” Response		The Host country of project implementation is Uzbekistan, not India. As analysed in the Section B.2 (Table 2) of PDD: “Natural gas reserve in Uzbekistan is 1.8 trillion cubic meters, ranked as ¹⁹ th in the world as of January 2010. ^{††} Natural gas is supplied from the Shurtan gas field and processing facilities located about 30 km from the project site. Gas reserves and supply capacity of 953 million cubic meters per year is assured for the entire life of the proposed project activity.” Therefore there should not be any interruption of the gas supply.
Documents Presented		No documents are needed, only explanation has been provided in this document.
DOE comment		Comment is not relevant for this particular GHG project. No further action is needed.
SC02	Comment submitted by M.Brutus	No plan has been submitted regarding use of 2% of the net revenue accrued from the sale of CER toward achieving the sustainable development goals

^{††} Central Intelligence Agency. 2011. “World Factbook: Country Comparison-Natural Gas Proved Reserve.” Available at <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2179rank.html?countryName=Uzbekistan&countryCode=uz®ionCode=cas&rank=19#uz>



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<i>SJSC "Uzbekenergo"</i> <i>Response</i>	There are no this requirement in the Republic of Uzbekistan. Please see Uzbekistan Letter of Approval which states that «Talimarjan Clean Energy Generation Project» complies with the requirements provided for in the Procedure of Preparation and Realization of Investment Projects within Clean Development Mechanism under the Kyoto Protocol in the Republic of Uzbekistan issued on 10 January 2007 and assists the Republic of Uzbekistan in achieving sustainable development.
<i>Documents Presented</i>	No documents are needed, only explanation has been provided in this document.
<i>DOE comment</i>	Comment is not relevant for this particular GHG project. No further action is needed.

SC03	Comment submitted by M.Brutus	The investment analysis is incomplete and fails to provide the data and assumptions necessary for reader to reproduce the result.
<i>SJSC "Uzbekenergo"</i> <i>Response</i>		Investment analysis was revised accordingly. Please see amended Excel file with Investment Analysis calculation.
<i>Documents Presented</i>		Excel file with Investment Analysis calculation, Version 4.5 dated 07/11/2013
<i>DOE comment</i>		Investment Analysis of the CDM project was considered in sufficient way by PPs in the PDD section B.5. The DOE performed verification of the information and made recalculations required.. As a result, some corrective action requests were raised by the validation team, and these issues as well as PPs responses are provided in Appendix A to this report. No further action is needed.
SC04	Comment submitted by M.Brutus	No information has been provided regarding the cost of fuel switch in the PDD.



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<i>SJSC "Uzbekenergo" Response</i>		The cost of fuel is provided in the Table 5 'Data for LCOE calculation for remaining alternatives'. Please see PDD Version 4.5 dated 07/11/2013
<i>Documents Presented</i>		PDD Version 4.5 dated 07/11/2013
<i>DOE comment</i>		The cost of fuel is provided in the Table 5 'Data for LCOE calculation for remaining alternatives'. Please see PDD Version 4.5 dated 07/11/2013. No further action is needed.
SC05	Comment submitted by M.Brutus	As per the EIA report the noise level recorded in the individual process units exceeded the stipulated standards of Central Pollution Control Board (CPCB).
<i>SJSC "Uzbekenergo" Response</i>		As the project is implemented in Uzbekistan, not India standards of Central Pollution Control Board are not applicable. As stated in EIA (page 40, Table 12) all noise levels are within regulatory noise limits and therefore no standards are exceeded.
<i>Documents Presented</i>		No documents are needed, only explanation has been provided in this document.
<i>DOE comment</i>		Comment is not relevant for this particular CDM project. No further action is needed.
SC06	Comment submitted by M.Brutus	The PDD does not explain about identified training, monitoring and maintenance as per the Technology requirements for contractors / engineers by the client. There is no mention of field quality Assurance systems & procedures that are available at site, field quality plans and their approval.
<i>SJSC "Uzbekenergo" Response</i>		Training of the staff is mentioned in the Section B.7.3 when monitoring procedures are described. Additionally Quality Control and Quality Assurance procedures are described in this Section. In particular: "All meters and instruments will be installed, maintained and calibrated regularly as per industry practices and in accordance with the maintenance schedule programmed at the start of the operation and recalibrated according to the plants performance requirement. The monthly measured quantity of the consumed natural gas and the electricity to the grid can be cross-checked by the monthly issued invoices." Please see PDD Version 4.5 dated 07/11/2013.
<i>Documents Presented</i>		PDD Version 4.5 dated 07/11/2013



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<i>DOE comment</i>		The DOE performed verification of the information. As a result, some corrective action requests were raised by the validation team, and these issues as well as PPs responses are provided in Appendix A to this report. No further action is needed.
SC07	Comment submitted by M.Brutus	Chronology of events with corresponding emails, letters need to be validated by DOE.
<i>SJSC "Uzbekenergo" Response</i>		Chronology of project implementation is presented in the Table 8 "Implementation timeline of the proposed CDM activity" Supporting documents were submitted to DOE during the site visit.
<i>Documents Presented</i>		Written correspondence between SJSC "Uzbekenergo" and Synecta a.s.
<i>DOE comment</i>		Supporting documents were submitted to DOE during the site visit and further on during the validation. No further action is needed.
SC08	Comment submitted by M.Brutus	The leakage calculation is not correct as per applied meth AM0029.
<i>SJSC "Uzbekenergo" Response</i>		Calculations were double-checked. No inconsistencies were found. Please see CER calculation Excel file.
<i>Documents Presented</i>		CER calculation Excel file, Version 4.5 dated 07/11/2013
<i>DOE comment</i>		Calculations were double-checked by DOE. No inconsistencies were found as well. No further action is needed.
SC09	Comment submitted by M.Brutus	What is the basis for arriving discount factor since it has more bearing on the levelised cost.
<i>SJSC "Uzbekenergo" Response</i>		Leverized costs are used for selection of the baseline scenario and are considered as the most convenient way to compare different scenarios (not depending on the structure of the financing). Equity IRR is applied in the benchmark analysis as available benchmark is expected rates of return (not LCOE). Therefore two different indicators are applied in the different Sections of PDD where they are



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		appropriate.
<i>Documents Presented</i>		Section B.5. of the PDD Version 4.5 dated 07/11/2013.
<i>DOE comment</i>		DOE has checked the correctness of applying financial indicators and found them appropriate. No further action is needed.
SC10	Comment submitted by M.Brutus	The input values taken for calculation of levelised cost of generation are not provided. Pls. clarify.
	<i>SJSC "Uzbekenergo" Response</i>	Input values for levelised costs calculation are provided in the Table 5. Data for LCOE calculation for remaining alternatives. Please see PDD Version 4.5 dated 07/11/2013
	<i>Documents Presented</i>	PDD Version 4.5 dated 07/11/2013
	<i>DOE comment</i>	Validation team confirms that the relevant data for calculation of remaining alternatives is provided in Table 5 of the PDD Version 4.5 dated 07/11/2013.
SC11	Comment submitted by M.Brutus	The argument for opting out of other energy sources from the baseline is not adequately demonstrated in the PDD. Where is the proof for each of the argument? PP has duty to provide to all the points it raised to opting out of renewable and other sources.
	<i>SJSC "Uzbekenergo" Response</i>	Argumentation for baseline scenario is provided in the Section B.4. 'Establishment and description of baseline scenario'. Please see PDD Version 4.5 dated 07/11/2013
	<i>Documents Presented</i>	AM0029, version 3.0.
	<i>DOE comment</i>	Possible alternatives are stipulated by the approved CDM methodology AM0029, version 3.0. All of them were considered by the PPs in a due way
SC12	Comment submitted by M.Brutus	The reason for excluding the power generation using natural gas with different technologies is not clear. It is mentioned in the PDD that the project activity is a combined cycle power plant with the modern state of art technology and significant efficiency improvement is not possible with current technology status to reduce GHG intensity any further. As CCPP is very efficient technology there are no higher



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		efficient technologies available to the project proponent for power generation utilizing natural gas.
<i>SJSC "Uzbekenergo" Response</i>		As demonstrated in the Section B.4 where baseline analysis is described CCPP is the most efficient technology, but not the cheapest option in terms of construction. As also demonstrated in the Section B.4 is Open Cycle Gas Turbine generation is considered to be the baseline scenario as it provides the best combination of low cost of construction and efficiency of generation.(LCOE is the lowest). See more details in PDD Version 4.5 dated 07/11/2013
<i>Documents Presented</i>		Section B.4. of the PDD Version 4.5 dated 07/11/2013
<i>DOE comment</i>		Validation team confirms that all the evidence presented by PP was found adequate.
SC13	Comment submitted by M.Brutus	Project proponent conveniently hides the past history of the project and presents it as if it is a new project. DOE to check the prehistory of the project.
<i>SJSC "Uzbekenergo" Response</i>		Chronology of project implementation is presented in the Table 8 "Implementation timeline of the proposed CDM activity" Supporting documents were submitted to DOE during the site visit.
<i>Documents Presented</i>		No documents are needed, only explanation has been provided in this document.
<i>DOE comment</i>		The DOE performed verification of the information during the site visit and as a part of desk review of the documents submitted by the PPs for validation. As a result, some corrective action requests were raised by the validation team, and these issues as well as PPs responses are provided in Appendix A to this report. No further action is needed.
SC14	Comment submitted by M.Brutus	DOE to check the DPR, tender documents inviting proposals, tender correspondence, proposals etc. to clearly validate.
<i>SJSC "Uzbekenergo" Response</i>		During site visit DOE also interviewed Uzbekenergo staff regarding this issue.
<i>Documents Presented</i>		No documents are needed, only explanation has been provided in this document.
<i>DOE comment</i>		At the moment of PDD development there were no final decision regarding the manufacture of equipment to be installed in the framework of the project. Accordingly at this stage any documents



		form supplier or Purchase order cannot be provided. No further action is needed.
SC15	Comment submitted by M.Brutus	The PP states that they have considered 80% accelerated depreciation. However the PDD is silent on the tax shielding as a result from accelerated depreciation. PPs cleverly do not consider the accounting tax offsetting in their companies while calculating the IRR. This is evident from the recently registered projects and those requesting registration
	<i>SJSC "Uzbekenergo" Response</i>	There is no any statement about accelerated depreciation in PDD or investment analysis calculation. Please see PDD Version 4.5 dated 07/11/2013 and relevant Excel files.
	<i>Documents Presented</i>	No documents are needed, only explanation has been provided in this document.
	<i>DOE comment</i>	Comment is not relevant for this particular CDM project. No further action is needed.
SC16	Comment submitted by M.Brutus	The DOE is therefore requested to critically analyze how the accelerated depreciation benefit has been taken into account and confirm the accounting of the cash inflows as a result of the negative tax liability in the initial years. DOE should not be misguided by the financial presented by the PP or consultant which are custom made for CDM purposes and not the actual financial considered at the investment decision. Note that considering cash inflows results in an increase in the IRR making wind projects a profitable venture.
	<i>SJSC "Uzbekenergo" Response</i>	There is no any statement about accelerated depreciation in PDD or investment analysis calculation. Accordingly there is no any impact on the project IRR. Please see Excel file with Investment analysis calculation,
	<i>Documents Presented</i>	No documents are needed, only explanation has been provided in this document.
	<i>DOE comment</i>	Comment is not relevant for this particular CDM project. No further action is needed.
SC17	Comment submitted by M.Brutus	Please also check the offer from WTG supplier and Purchase Order while validating the PLF. It may be so that the third party report which is made after investment decision maki-g - indicates a lower PLF. The PLF seems to be very low. Also check the tariff order.
	<i>SJSC "Uzbekenergo" Response</i>	As discussed above at the moment of PDD development it there were no final decision regarding the manufacture of equipment to the installed in the framework of the project. Therefore there is a range for



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		<p>each performance due to final technical solution which will be implemented on site. Accordingly at this stage any documents form supplier or Purchase order cannot be provided. All important performance indicators are provided in the Table 1 and based on the expert estimation of Uzbekenergo.</p>
<i>Documents Presented</i>		Letter No.5742 dated 26/11/2012 on technical characteristics of Combined Cycle Gas Turbine from UE "Talimarjon Thermal Power Station" of SJSC "Uzbekenergo"
<i>DOE comment</i>		Validation team confirms that all the evidence presented by PP was found adequate, valid, veracious and trustworthy. All relevant CARs and CLs were raised during validation process and successfully closed by PP. Please refer to the protocol Appendix A.
SC18	Comment submitted by M.Brutus	Methodology selection is wrong – applicability condition 1 of AM0029 requires 'The project activity is the construction and operation of a new natural gas fired grid-connected electricity generation plant.' This project plant is only a modification of an existing plant that operated for many years now.
	<i>SJSC "Uzbekenergo" Response</i>	<p>The project envisages construction of two new Combined Cycle Gas Turbine Power Plant (CCGT) in the boundary of the existing Talimarjan thermal power station (TTPS) in Kashkadarya region of the Republic of Uzbekistan (new turbines power plant will be constructed close to the existing capacities of the power plant.</p> <p>According to CDM terms (please see AM0087, page 1) New power plant is determined as: "a newly constructed power plant with no operational history". Also it is stated that Power plant should be defined as per the "Tool to calculate the emission factor for an electricity system".</p> <p>In the mentioned tool Power plan is defined as follows.</p> <p>Power plant/unit. A power plant/unit is a facility that generates electric power. Several power units at one site comprise one power plant, whereas a power unit is characterized by the fact that it can operate independently from other power units at the same site. Where several identical power units (i.e. with the same capacity, age and efficiency) are installed at one site, they may be considered as one single power unit.</p> <p>Accordingly there is requirement that New power plan should be greenfield, but requirement to have no operational history and generates electricity independently from other power units.</p>



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<i>Documents Presented</i>		CDM Glossary, AM0029, AM0087
<i>DOE comment</i>		Validation team has a definition of new power plant checked in accordance with the mentioned methodologies and CDM terms and found it adequate and trustworthy. All relevant CARs and CLs were raised during validation process and successfully closed by PP. Please refer to the protocol Appendix A.
SC19	Comment submitted by M.Brutus	If the plant is just a retrofit, how baseline can be a coal based plant? Was it possible to retrofit this GTs to use coal? This is a ridiculous claim by behalf of PP and consultants.
<i>SJSC "Uzbekenergo" Response</i>		In the case of Talimarjan project: 2 new turbines which will be constructed will have no operational history; 2 new turbines can be considered as plant according to the power plan definition. "several power units at one site comprise power plan"; New turbines will generate electricity from the exiting power units. Thus although project is not a greenfield, but existing site of Talimarjan thermal power station, new construction is considered to be a New power plant.
<i>Documents Presented</i>		CDM Glossary, AM029, AM0087
<i>DOE comment</i>		Validation team has a definition of new power plant checked in accordance with the mentioned methodologies and CDM terms and found it adequate and trustworthy. All relevant CARs and CLs were raised during validation process and successfully closed by PP. Please refer to the protocol Appendix A.
SC20	Comment submitted by M.Brutus	Whether project has got Environment Clearance from Ministry of Environment & Forest, New Delhi? What are major conditions stipulated in Clearance?
<i>SJSC "Uzbekenergo" Response</i>		The project is not required to obtain Environment Clearance from Ministry of Environment & Forest, New Delhi because it is implemented in Uzbekistan, but not India. The project which is planned to be implemented is in line with existing legislation which is confirmed by the LoA.
<i>Documents Presented</i>		No documents are needed, only explanation has been provided in this document.



<i>DOE comment</i>		Comment is not relevant for this particular CDM project. No further action is needed.
SC21	Comment submitted by M.Brutus	Whether uninterrupted supply of Natural Gas has been ensured from suppliers for continuous operation? Whether gas will be provided from existing network of pipeline or modification is needed?
<i>SJSC "Uzbekenergo" Response</i>		The plant will be constructed in the boundaries of existing Talimarjan station, close to existing turbines which already operated with the use of the natural gas. Therefore no modification of existing network of pipeline is required.
<i>Documents Presented</i>		No documents are needed, only explanation has been provided in this document.
<i>DOE comment</i>		It has been seen on site and is confirmed by the validation team that uninterrupted supply of Natural Gas is ensured from suppliers for continuous operation as it will be provided from existing network of pipeline. No modification is needed?
SC22	Comment submitted by M.Brutus	Host country is already encouraging sustainable development on basis of clean technology and cleaner fuel, in this case how this project meet additionality criteria of CDM process?
<i>SJSC "Uzbekenergo" Response</i>		As described in the Section B.4 "Although the development of the coal industry in Uzbekistan has been slow, the government plans to increase power generation using coal from 4% in 2009 to 15% in 2020 in order to diversify energy resources available in the country." This aims to the saving of natural gas which is a finite resource and can be exported out of the country. Therefore no contradiction to existing strategy or goals of Uzbekistan republic.
<i>Documents Presented</i>		Uzbekenergo site: http://www.uzbekenergo.uz/rus/o_sovremennom_sostoyanii_iperspektivax_razvitiya_energetiki/
<i>DOE comment</i>		Validation team confirms that all the evidence presented by PP was found adequate, valid, veracious and trustworthy.
SC23	Comment submitted by M.Brutus	Whether Environment Public Hearing as process of Environment Clearance was arranged for this gas based power plant? If yes, what were major discussion and decisions of Environment Public Hearing?
<i>SJSC "Uzbekenergo"</i>		The project is required to have Environment Public Hearing as process of Environment Clearance



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<i>Response</i>	because it is implemented in Uzbekistan, but not India. The project which is planned to be implemented is in line with existing legislation which is confirmed by the LoA.
<i>Documents Presented</i>	Resolution Cabinet of Ministers of the Republic of Uzbekistan dated 31/12/1991 No. 491 "On Approval of Regulation on State Ecological Expertise in the Republic of Uzbekistan" Conclusion of the State Ecological Expertise dated 05.10.2009 No.18/526z. EIA of the project prepared by OJSC "Teploelektroproekt"
<i>DOE comment</i>	Validation team confirms that all the evidence presented by PP was found adequate, valid, veracious and trustworthy.

SC24	Comment submitted by M.Brutus	<p>Additionality</p> <p>The methodology considers a project additional under the following circumstances</p> <p>a) There is a more economically attractive and GHG intensive alternative available to the project activity (lower levelized cost when compared to the project activity); and</p> <p>b) The project on a standalone basis is not financially attractive (low IRR as compared to standard industry benchmark)</p> <p>While the PP has demonstrated that there is a more economically attractive option available as compared to the project activity, it has not demonstrated that the project on a standalone basis is not financially viable. As the project activity involves displacement of power on the grid and the alternative can be set up by any other entity as well, it needs to undertake a benchmark analysis. In order to perform benchmark analysis, the PP needs to take into account the tariff that it receives from the sale of power.</p> <p>The plant is being setup as a Merchant Power Plant (MPP) and hence may not enter into a long term PPA. It is a well known fact that merchant power plants are very attractive, because they get higher tariff than PPA based power plants. An article in Povernomics is quoted here.</p>
<i>SJSC "Uzbekenergo" Response</i>		As demonstrated in the Section B.5 with the use of the benchmark analysis without CDM revenues project is considered as financially unattractive as the equity IRR is lower than the benchmark. In the same time with CDM revenues equity IRR is higher as the benchmark.



	As it is also stated in the Section B.5 investment analysis was an important step in decision making when investor decided to enter the project. CDM revenues were considered important as they provide additional revenues in the first years of plant operation when it is the most important. Therefore it demonstrates that the project is not financially attractive without CDM revenues.
<i>Documents Presented</i>	No documents are needed, only explanation has been provided in this document.
<i>DOE comment</i>	The issue was assessed during validation process. Relevant documents were provided by PP to clarify the point. Validation team confirms that all the evidence presented by PP was found adequate, valid, veracious and trustworthy.

10. APPENDIX C: REQUESTS RECEIVED FROM THE CDM TEAM

Requests received from the CDM team on 17/10/2013

Request #1 submitted by the CDM team	The DOE is requested to describe how each applicability condition of the methodology/ies is fulfilled by the project activity as per VVS version 2 paragraphs 76 and 77. The DOE is requested to clarify how it considered that the project activity fulfils the applicability condition 3 as the information regarding the future natural gas power capacity addition has not been provided. Please refer to VVS para 76
DOE comment	Considering the requests of the CDM team made on 17/10/2013 and following the provision of paragraph 76 of the VVS version 2, the DOE confirms that the project activity fully meets the applicability condition 3 of the approved methodology AM0029: Baseline Methodology for Grid Connected Electricity Generation Plants using Natural Gas Version 3.0 used by the Project Participants that refers to the sufficiency of the natural gas available in the region or country of the project implementation. The documentation referred to in the PDD was validated by the validation team through double-checking the data provided in the PDD that concerns estimation of the natural gas reserves (source of the data is US Energy Information Administration.



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	<p>http://www.eia.gov/countries/country-data.cfm?fips=UZ#ng). Its content is acknowledged to be correctly quoted and interpreted. The DOE confirms that information provided by the Project Participants is taken from the recognized and credible sources. This information was cross checked against comparable information available from credible sources other than that used in the PDD, namely, natural gas proved reserves were assessed against the World Factbook of the Central intelligence Agency http://www.eia.gov/countries/country-data.cfm?fips=UZ#ng and estimation of the natural gas consumption (which is based on Technical feasibility study made by Teploelectroproject, Tashkent engineering company).</p> <p>Project Participants have updated the description of applicability condition 3 in the PDD. Please find it in the PDD Version 4.5 dated 07/11/2013. Specifically estimation of Uzbekistan natural gas reserves was updated to the latest available values. Also information regarding future natural gas power capacity addition was added to the text. Please see page 8 of the PDD.</p> <p>The Validation report was updated by the DOE to version 03 dated 09/12/2013. Correspondent sections of the Validation Report were amended respectively.</p>
Request #2 submitted by the CDM team	<p>The DOE is requested to describe how it has validated the suitability of the input values used in the financial calculations as per VVS version 2 paragraphs 120 and 123 (a). The DOE is requested to provide further information on how each input values used in the levelized cost analysis for each alternative has been crosschecked in line with VVS para 120(b) and (c) as the validation report does not provide any specific information.</p>
DOE comment	<p>Validation report was updated with further information on how input values used for financial calculation and levelized costs analysis were validated and cross-checked.</p> <p>According to the VVS paragraphs 120 and 123, the DOE should verify the accuracy of financial calculations carried out for any investment analysis, in particular cross-check the parameters against the third-party or publicly available sources, such as invoices or price indices.</p> <p>For the considered project the following checks were made by the DOE:</p> <p>Taxes rates were cross-checked against Presidential Degree - Republic Uzbekistan # PP-1024 from</p>



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	<p>29/12/2008;</p> <p>Projection of the Electricity tariff were cross-checked with Financial analysis report of Asian Development Bank;</p> <p>Gas tariffs were cross-checked against official Uztransgas site;</p> <p>Exchange rates were cross-checked against information provided by National bank of Uzbekistan;</p> <p>Technical data for the power plants (alternative scenarios) were cross-checked against Technical feasibility study developed by Teploelectroproject</p> <p>Therefore, the data for financial calculation and levelized costs analysis were cross-checked against the third-party or publicly available sources as it is required by the VVS para 120.</p>
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Requests received from the CDM team on 06/02/2014

Request #1 submitted by the CDM team	<p>The PP/DOE are requested to complete all sections of the PDD related to the description of the project activity as per PS version 2.1 paragraphs 30-34.</p> <p>The DOE has validated that the installed capacity is 450MW for each unit and 900MW in total, however, the PDD page 3 states that the maximum capacity is 820MW. Please rectify the inconsistency. The PP/DOE is also requested to clarify how the annual electricity supplied to the consumers is calculated (i.e. 4,674GWh/year as per page 3 and page 5 of the PDD) based on the technical specifications provided in the Table 1 of PDD page 5.</p>
DOE comment	<p>At the moment of decision making final technical solution for the project was not clear. Although the title of the project was construction of 2 unit of 450 MW capacity (900 MW in total) inside the project documentation it was stated that total capacity of the units will be between 740 MW and 900 MW. This statement was included in the feasibility study as well as in ADB report (please see References).</p> <p>Therefore, in order to be conservative for the purpose of the project calculations moderate 820 MW estimation (medium between 740 MW and 900 MW) was assumed regardless of the fact that project always tend to have 900 MW of total capacity.</p> <p>The value of the electricity supply in financial calculation are estimated as follows: $\text{Total capacity (MW)} * \text{Capacity load (\%)} * 8760 \text{ hours} * (1 - \text{Internal electricity consumption} - \text{Technical losses} - \text{Commercial losses}).$</p>



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	<p>Total capacity and capacity load were taken from the data provided by Uzbekenergo. Internal electricity consumption, Technical losses and Commercial losses were taken from ADB report</p> <p>As assumptions taken by ADB in the calculation table were not transparent and calculated values did not deviate much from 'Annual Electricity Supply' values from the table, calculated values were considered as the most consistent (with all other assumptions of the model).</p> <p>PP has updated PDD with all the abovementioned information to the version 4.7.</p>
Request #2 submitted by the CDM team	<p>The DOE is requested to describe how each applicability condition of the methodology/ies is fulfilled by the project activity as per VVS version 3 paragraphs 76 and 77. The DOE is requested to provide the information on how it has validated the prediction of future natural gas power capacity additions as well as the future natural gas consumption, to demonstrate that the natural gas is sufficiently available in the region/country.</p>
DOE comment	<p>With regards of the CDM team request and in additions to the documents previously validated by the Bureau Veritas validation team to demonstrate that the natural gas is sufficiently available in the region/country, the validation team forwarded its request to Mr. Basidov, Chairman of the Board of SJSC "Uzbekenergo" (http://uzbekenergo.uz/en/about/management/) to provide documentary evidences in support of the prediction of future natural gas power capacity additions as well as the future natural gas consumption. In response BV validation team received a copy of the letter #31/7-5306 dated 14/10/2013 sent by the Chairman of Board of the National Holding Company "UZBEKNEFTEGAZ" Mr. Fajzullayev (www.ung.uz; http://en.wikipedia.org/wiki/Uzbekneftegaz) to Mr. Basidov on his letter of request # IB-01-21/1830 dated 19/09/2013 in which it is stated that "As per the planned activities and projects within the designed programme "On Main Indicators of Oil and Gas Industry Development Programme in the Republic of Uzbekistan for 2013-2020", Uzbekneftegaz National Holding Company confirms the possibility of supplying Talimarjan HPP with sufficient amount of gas taking into account the commissioning of two CCGTs at the end of 2016".</p> <p>Section 3.8.1. of Validation report updated to version 05, as well as the list of Category 2 Documents were amended by those supporting documents.</p>



Request #3 submitted by the CDM team	<p>The DOE is requested to describe how it has validated the project starting date as per VVS version 3 paragraphs 112 (a).</p> <p>The DOE is requested to provide the information on the nature of the "Framework Agreement" between the SJSC "Uzbekenergo" and the company Synecta. i.e. whether it includes EPC contract or it is only CDM consultancy/CER purchase contract. Further, the DOE is requested to provide the information on how it has validated the project start date. i.e. 25/06/2012 when the aforementioned "Framework Agreement" was signed. In doing so, the DOE is requested to provide the total contracted value to demonstrate that this is the major commitment and funding allocation to the proposed CDM project.</p>
DOE comment	<p>"Framework Agreement" between the SJSC "Uzbekenergo" and the company "Synecta a.s" signed 25/06/2012 puts and obligation to the parties to sign the Agreement on the purchase of emission reductions, "Synecta a.s" is also obliged to provide CDM consultancy while SJSC "Uzbekenergo" to provide all necessary data for the PDD development and its further validation. The Agreement defines the framework of cooperation between "Synecta a.s" and SJSC "Uzbekenergo" in the relations of the CDM projects implementation.</p>
Request #4 submitted by the CDM team	<p>The DOE is requested to describe how it has validated the suitability of the input values used in the financial calculations as per VVS version 3 paragraphs 120, 122 and 123(a). The DOE is requested to provide detail information on how each input value used in the levelized cost analysis for each alternative and IRR calculation has been cross checked in line with VVS version 3 para 120(b), (c) and 122(c). In particular, the total installed capacity for each year, PLF for each year, investment cost, fuel cost, electricity tariff, annual power supplied to the consumer, Maintenance and management costs, Water costs and Capital repair, etc. In doing so, the DOE is requested to list the appropriate evidences that reviewed to cross check each input value for financial indicator calculation, provide the relevant figures/values from the cross checking sources transparently and justify the accuracy and suitability of each value applied.</p>
DOE comment	<p>The table containing input values for the provision of financial analyses and their sources was added to the Validation Report p. 25-26. All the data provided in the financial calculations were taken either from ADB 'Financial analysis (Talimarjan power project)', Letter from Uzbekenergo #5145 from 15 December 2011 and Letter from Uzbekenergo #5144 from 15 December 2011. All the sources were checked for</p>



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	<p>authenticity and validity and found to be reliable.</p> <p>Also at the moment of decision making (as per paragraph 6 of Guidelines on the assessment of investment analyses) information from Uzbekenergo was the only available source to compare the hypothetical alternative scenarios. And still there is no public information on the similar project in Uzbekistan. At the same time the data from other countries are not comparable due to Uzbekistan country specific circumstances.</p> <p>On the other hand, the data from the local DNA about the recently build and connected to the local grid capacities was provided to validation team. Please see References Category 2 Documents file# 67 'CO2 Emission Factor Calculation for the Uzbekistan National Grid (2010), Version 2 February 7, 2012, Section 3 'Calculation of the Build Margin Emission Factor' (this document was available at the moment of decision making). In these data there are no any investment costs but it is possible to see that most recently constructed capacities (after 1991) are gas generation and small hydrogenation plant. No coal generation was recently built.</p>
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Requests received from the CDM team on 04/03/2015 (CDM project activity/programme of activities registration request review)

Request #1 submitted by the CDM team	In the absence of the relevant information on the other contracts related to the project activity, e.g. EPC contract, equipment contract or construction contract for the project activity, the DOE is requested to further substantiate the project start date, the date of the "Framework Agreement" between the SJSC "Uzbekenergo" and Synecta, being the earliest date at which either the implementation or construction or real action of a CDM project activity begins. Please refer to Glossary of CDM Terms version 07.0.
DOE comment	Upon request SJSC "Uzbekenergo" presented a copy of "EPC Contract Agreement (Contract No. : SJSC/UzbekEnergo/ICB-2010-001)" between Talimarjan TPP Unitary Enterprise of SJSC UZBEKENERGO and Hyundai Engineering & Construction and Daewoo International Consortium concerning Talimarjan Thermal Power Plant Expansion Project – Construction of two Combined Cycle Power Plant (Gross 929 MW). The contract is dated 07.03.2013. The contract scope is to engage the



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	<p>Contractor to design, manufacture, test, deliver, construct, install, complete and commission certain facilities viz. [Gas Turbine and Generator, Steam Turbine and Generator, Auxillary equipment, Civil and Building stated in the contact agreement] and provide training to the Employer's technical personnel. The date this agreement is accepted as a project start date instead of previous date (25/06/2012 when a Framework Agreement" between the SJSC "Uzbekenergo" and the company "Synecta a.s" was signed). Corresponding changes to the PDD and Validation Report were performed regarding the project start day and project timeline.</p>
<p>Request #2 submitted by the CDM team</p>	<p>2) The DOE is requested to further substantiate the suitability of the input values in line with the VVS version 07.0 paragraph 127(b) and 127(c), in particular:</p> <p>(a) The sources of input values for each alternative. The PDD page 13 indicates the source for the project activity being the Letter #5145 and the document ADB 'Financial analysis (Talimarjan power project), whereas the PDD page 14 shows the source for all alternatives including the project activity being the Letter #5144. Furthermore, page 24 of the Validation Report states that that input values are taken from FSR, which was finalized in March 2012;</p> <p>(b) How it has crosschecked the following input values for each alternative: The Investment cost for each alternative, Maintenance and management costs for each alternative, Capital repair for each alternative, Cost of coal, Internal electricity consumption for each alternative, Technical losses and Commercial losses, as the Validation Report has not provided information how it has crosschecked the aforementioned input values, and it only checked the sources;</p> <p>(c) How it has validated the Efficiency of the plant for each alternative, and Plant load factor. In doing so, the DOE shall explain how the Technical feasibility study developed by Teploelectroproject was used to crosscheck the technical data, and the result of the crosschecking. And for plant load factor, the DOE is also required to explain how it has been validated in line with the EB48 Annex 11. Please refer to VVS version 07.0 paragraph 23(a)(ii), VVS version 07.0 paragraph 127(b) and 127(c).</p>



DOE comment	<p>(a) Validation Report was corrected as the FSR was source of the initial technical data and did not contain input values as financial indicators.</p> <p>(b) Crosschecking of the input values for each alternative was added into the Validation Report (see table)</p> <p>(c) the Teploelectroproject is a third party contracted by the project participants EB 48 Report requirements are: II. Ex-ante definition of the plant load factors 3. The plant load factor shall be defined ex-ante in the CDM-PDD according to one of the following three options: (a) The plant load factor provided to banks and/or equity financiers while applying the project activity for project financing, or to the government while applying the project activity for implementation approval; (b) The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company); III. Validation of plant load factors 4. In assessing whether a plant load factor has been defined correctly in a CDM-PDD, a DOE shall verify whether it derives from the above requirements under sections 3(a) and 3(b).</p> <p>The Teploelectroproject is a third party contracted by the project participants</p>
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Requests received from the CDM team on 04/03/2015 (CDM project activity/programme of activities registration request review)

Request #1 submitted by the CDM team	<p>In the absence of the relevant information on the other contracts related to the project activity, e.g. EPC contract, equipment contract or construction contract for the project activity, the DOE is requested to further substantiate the project start date, the date of the "Framework Agreement" between the SJSC "Uzbekenergo" and Synecta, being the earliest date at which either the implementation or construction</p>
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	or real action of a CDM project activity begins. Please refer to Glossary of CDM Terms version 07.0.
DOE comment	<p>Upon request SJSC "Uzbekenergo" presented a copy of "EPC Contract Agreement (Contract No. : SJSC/UzbekEnergo/ICB-2010-001)" between Talimarjan TPP Unitary Enterprise of SJSC UZBEKENERGO and Hyundai Engineering & Construction and Daewoo International Consortium concerning Talimarjan Thermal Power Plant Expansion Project – Construction of two Combined Cycle Power Plant (Gross 929 MW). The contract is dated 07.03.2013. The contract scope is to engage the Contractor to design, manufacture, test, deliver, construct, install, complete and commission certain facilities viz. [Gas Turbine and Generator, Steam Turbine and Generator, Auxillary equipment, Civil and Building stated in the contact agreement] and provide training to the Employer's technical personnel. The date this agreement is accepted as a project start date instead of previous date (25/06/2012 when a Framework Agreement" between the SJSC "Uzbekenergo" and the company "Synecta a.s" was signed). Corresponding changes to the PDD and Validation Report were performed regarding the project start day and project timeline.</p>
Request #2 submitted by the CDM team	<p>2) The DOE is requested to further substantiate the suitability of the input values in line with the VVS version 07.0 paragraph 127(b) and 127(c), in particular:</p> <p>(a) The sources of input values for each alternative. The PDD page 13 indicates the source for the project activity being the Letter #5145 and the document ADB 'Financial analysis (Talimarjan power project), whereas the PDD page 14 shows the source for all alternatives including the project activity being the Letter #5144. Furthermore, page 24 of the Validation Report states that that input values are taken from FSR, which was finalized in March 2012;</p> <p>(b) How it has crosschecked the following input values for each alternative: The Investment cost for each alternative, Maintenance and management costs for each alternative, Capital repair for each alternative, Cost of coal, Internal electricity consumption for each alternative, Technical losses and Commercial losses, as the Validation Report has not provided information how it has crosschecked the aforementioned input values, and it only checked the sources;</p>



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	<p>(c) How it has validated the Efficiency of the plant for each alternative, and Plant load factor. In doing so, the DOE shall explain how the Technical feasibility study developed by Teploelectroproject was used to crosscheck the technical data, and the result of the crosschecking. And for plant load factor, the DOE is also required to explain how it has been validated in line with the EB48 Annex 11. Please refer to VVS version 07.0 paragraph 23(a)(ii), VVS version 07.0 paragraph 127(b) and 127(c).</p>
DOE comment	<p>(a) Validation Report was corrected as the FSR was used to cross check data indicated in the Letter #5144 and Letter #5145.</p> <p>(b) Crosschecking of the input values for each alternative was added into the Validation Report as follows</p> <p>Following a request for review, under review and subsequently to further substantiate the suitability of the input values in line with the VVS version 07.0 paragraph 127(b) and 127(c) additional information was searched in the internet and requested from the PPs.</p> <p>PPs presented new evidencing documents that were not available at the moment of decision taking but related to the time after the project start date. These are “EPC Contract Agreement (Contract No.: SJSC/UzbekEnergo/ICB-2010-001)” between Talimarjan TPP Unitary Enterprise of SJSC UzbekEnergo and Hyundai Engineering & Construction and Daewoo International Consortium concerning Talimarjan Thermal Power Plant Expansion Project – Construction of two Combined Cycle Power Plant (Gross 929 MW) of 07.03.2013, and updated FSR developed by Teploelectroproject approved at November 07, 2013. (Feasibility study on “Talimarjan PP enhancement by construction of two combined power plants, 450MW each” volume 1, approved by Uzbekenergo Board Chairman and Uzneftegaschimproect 04.10.2013 and by the President of Uzbekistan Republic 07.11.2013.)</p> <p>The revised PDD has been submitted by the PP and correspondingly the validation report has been updated to incorporate the information submitted in response to the request for review and under review, regarding the suitability of the input values of the baseline alternatives.</p>



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Further information towards the validation of suitability of input values to the alternatives taking into account the VVS version 07.0 paragraph 127(b) and 127(c) is included, as follows:

The project scenario alternatives were re-evaluated by the PPs. As far as the amount of coal needed for alternatives based on the coal-fired power plant is within the range of the coal production in Uzbekistan (please see https://ru.wikipedia.org/wiki/%D0%AD%D0%BA%D0%BE%D0%BD%D0%BE%D0%BC%D0%B8%D0%BA%D0%B0_%D0%A3%D0%B7%D0%B1%D0%B5%D0%BA%D0%B8%D1%81%D1%82%D0%B0%D0%BD%D0%B0#cite_note-autogenerated2-17).

Moreover the government is planning to redirect one of the TPP(Novo-Angren TPP) which uses coal part time to fire coal full time that will require to almost double coal extraction in the country. This was cross checked in the internet <http://sreda.uz/index.php?newsid=537>, <http://www.gazeta.uz/2014/04/16/coal/> and found justified.

The input values of the baseline alternatives are indicated in the letters from Uzbekenergo #5144 and #5145 (Category 2 documents #65-66) were checked from other sources as follows.

Total rated capacity has been checked from feasibility study report and the EPC contract. EPC Contract gives 929 MW (in the PDD figure 820 MW is more conservative).

Plant Load Factor was checked from ADB financial analysis where it was taken as 85% (Category 2 documents #40, also at <http://www.adb.org/Documents/RRPs/?id=43151-02-3>)

Following a request for review, under review and subsequently the guidance provided in EB-48 meeting report, Annex 11, the ex-ante definition of the plant load factors validation was checked.

The Teploelectroproject is a third party contracted by the project participants, contract agreement was presented by PPs, see Category 2 documents #70.. This is in accordance with option (b) of the ex-ante definition of the plant load factors. A plant load factor that derives from the FSR performed by the



	<p>engineering company Teploelectroproject (Category 2 documents #68) makes 8000 hours/8760 hours = 91.3% (85% taken in the PDD is more conservative)</p> <p><i>Internal electricity consumption</i> was checked from Teploelectroproject calculation FSR (Category 2 documents #68) and also from ADB financial analysis where it was taken as 85% (Category 2 documents #40, also at http://www.adb.org/Documents/RPps/?id=43151-02-3), same value is indicated 3.45%.</p> <p><i>Efficiency</i> of the two CCGT units for the project is 57.4%. This was checked from the FSR for Talimarjan project makes 57,4% (Siemens option). Same is indicated in the pg. 9 of ADB financial analysis, at http://www.adb.org/Documents/RPps/?id=43151-02-3. Efficiency of for steam-cycle unit is estimated as 34% at the FSR by Teploelectroproject (Category 2 documents #68) and this is confirmed in the ADB financial analysis.</p> <p><i>Investment Cost</i> was checked from the EPC contract investment costs per MW are 861.8/929 = 0.928 mln.\$/MW. In the PDD for calculations 0.995 mln. \$/MW were applied which is more conservative. (Category 2 documents #69). For OCGT plant the investment was estimated as 0.62 mln.\$/MW. The following documents were reviewed by DOE for cross-checking this value:</p> <ol style="list-style-type: none"> 1. Projected costs of Generation Electricity, International Energy Agency, 2010 Edition, page 61 Gas Turbine (Germany) – \$ 0.52 mln./MW 2. PDD for “Samra 300 MW combined cycle project” (registration date - 20 Sep 11) Gas turbine (Jordan) – \$ 0.479 mln./MW http://cdm.unfccc.int/Projects/DB/DNV-CUK1309497987.25/view 3. PDD for “Afam Combined Cycle Gas Turbine Power Project” (registration date - 29 Oct 12) OCGT power plant (Nigeria) - \$ 0.456 mln./MW http://cdm.unfccc.int/Projects/DB/DNV-CUK1325573884.39/view <p>In the calculation value of \$ 0.62 mln./MW was applied which is higher cost and therefore conservative.</p>
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	<p><i>Maintenance and management costs</i> for each alternative, was checked from final FSR where they are estimated as \$ 0,95 mln. (taken the exchange rate 2178.56 valid at 07 November 2013). Assuming the higher capacity of the final project data can be considered as consistent. (Category 2 documents #68)</p> <p><i>Natural gas cost</i> is available from the Internet data, Uzbekneftegas site http://ns.uzneftegaz.uz/ru/business/tarifs/ (for wholesale consumers). It also was checked from the Uzbekistan Ministry Finance decree №19-03-22-05-PY3-9-2012 of 15 March 2012, 0.053 US\$/ m3</p> <p><i>Water costs</i> - 1. In Teploelectroproject calculation water costs are assumed as 0,0153 \$ per m3. Which are equivalent to \$ 6.5 mln. \$ assuming 57 600 m3/hour water consumption (6.9 was applied in the PDD for calculation). For OCGT plant the estimation of these costs in absolute numbers was 1.05 mln. \$ which were conservatively applied to the calculations.</p> <p><i>Capital repair</i> for CCGT alternative was checked from the final FSR, capital repairs are estimated as \$ 34.3 mln. This is bigger figure comparatively to the initial FSR where it was indicated</p> <p><i>Technical losses</i> were checked from the ADB financial analysis where it was taken as 85% (Category 2 documents #40, also at http://www.adb.org/Documents/RPps/?id=43151-02-3)</p> <p><i>Commercial losses</i> were checked from the ADB financial analysis where it was taken as 85% (Category 2 documents #40, also at http://www.adb.org/Documents/RPps/?id=43151-02-3)</p> <p>(c) Following a request for review, under review and subsequently the guidance provided in EB-48</p>
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	<p>meeting report, Annex 11, the validation report has been revised.</p> <p>The Teploelectroproject is a third party contracted by the project participants, contract agreement was presented by PPs. This is in accordance with option (b) of the ex-ante definition of the plant load factors. It was verified that a plant load factor is more conservative than one which derives from the FSR performed by the engineering company Teploelectroproject.</p>
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Bookmark

Contract No.	UKRAINE/0408/2012
Project title	Talimarjan Clean Energy Generation Project
GSC-PDD version	3.0
GSC-PDD date	16/07/2012
GSC Period	08/08/2012 – 06/09/2012
Final PDD version	4.7
Final PDD date	30/06/2014
Methodology A and version	AM0029 Version 3.0
Methodology B and version	N/A
Crediting period	From 01/07/2015 to 30/06/2025
Site visit date	10/09/2012 – 11/09/2012
FVR Sign-off date	25/04/2013
ER	8,361,518 tCO ₂ e
Project owner	SJSC “Uzbekenergo”
Project buyer	Synecta a.s.
Consultant	Synecta a.s.
Client	Synecta a.s.
Project location	Kashkadarya region of the Republic of Uzbekistan



VALIDATION REPORT

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